

# THE IRON AGE August 10, 1933

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# ..THE IRON AGE..

AUGUST 10, 1933

Vol. 132, No. 6

## The Blue Eagle and The Buzzards

THE code hearings at Washington, essential as they are under the terms and purposes of the Recovery Act, provide a striking example of the futility of attempting to take industry apart and put it together again through a public forum.

The heterogeneous group which seized upon the opportunity to appear at the steel code hearing and tell how this industry should be run demonstrated this conclusively.

The organized labor leaders, social minds, uplifters, downpushers and communists who testified, evidently believed implicitly that their ideas were superior to the collective experience of the management of the great industry of which none of them had had a part.

If the suggestions regarding maximum hours, minimum wages, compulsory insurance and soviet management were to be adopted, iron and steel, from the cost standpoint, would be put into the category of precious metals.

Fortunately, codes are not settled in these public hearings which provide an "open season" for pot-shotting industry.

Steel will cheerfully follow the line of flight of the blue eagle, but it will determinedly fight the buzzards that follow in its train.





# Centerless Grinding a Versatile Process

**C**ENTERLESS grinding is recognized by production engineers and others having a practical interest in the subject of grinding as a distinct step forward in the march of progress as related to manufacturing methods. Not only does it increase the production and quality of certain classes of work originally finished by the older method of grinding between centers, but it finish grinds to close limits of accuracy and at comparatively high production rates work that heretofore could not be ground at all.

That the reader may be familiar with the principles of centerless grinding, the general construction of the machine and the advantages of the different methods used will be outlined. The information given in this article refers to the horizontally opposed, two-wheel type of centerless grinder, in which the centers of the grinding and regulating wheels are in the same horizontal plane, and a work-support blade is used to support the work in grinding position between the faces of the grinding and regulating wheels.

The grinding wheel is usually a constant-speed wheel 20 to 24 in. in diameter and of any width up to 8 or 10 in. The regulating wheel is usually of variable-speed, is 12 to 14 in. in diameter and of any width up to 8 or 10 in. The width of either grinding or regulating wheel or both depends on the particular class of work being ground. The grinding wheel spindle is usually mounted in the bed of the machine and is stationary in regard to movement in any direction. The regulating wheel, however, is mounted on an auxiliary slide that can be adjusted very accurately to compensate for size variation in the work being ground. Also, the axis of the regulating wheel can be inclined with the horizontal to suit any grinding condition. The work-support blade

can also be adjusted for height to accommodate different sizes of work.

## Now Applicable to Small Lots

Centerless grinding may be divided into two general methods: through-feed and infeed. There are a number of combinations and modifications of these two methods which make it possible to adapt the process to a variety of work. The centerless grinder has been thought of as a high production machine which can be operated economically only on a large production basis. However, this is not the case, as the machine is being employed on small lots of work, which had previously been ground by the center-type method, and has shown reduced grinding costs. This is true because it is now possible to use the through-feed and the infeed methods individually or with their proper combinations or modifications as the work requires.

Advantages of the centerless grinder as applied to work of varied nature are as follows:

1. The grinding process is continuous with the through-feed method and approaches continuous operation with the infeed method; thus idle machine time is reduced to a minimum.
2. During the grinding cut, the work is supported rigidly not only directly under the grinding cut, but also throughout its entire length. Thus there is no deflection of the work during the grinding cut; as a result, comparatively heavy cuts can be taken.
3. As true floating condition of the work exists during the grinding process, error of centering is eliminated, less grinding stock is required, and a corresponding increase in wheel life is obtained.

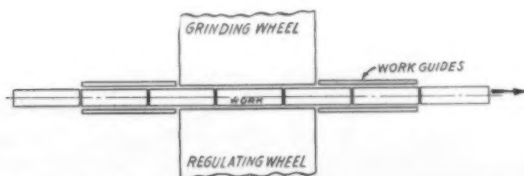
4. Stock removal is measured on the diameter and not on the radius, so that possibility of error in setting up the job and in readjusting to compensate for wheel wear is reduced by half.

5. Long, brittle pieces and easily distorted parts can be ground because end-pressure on the work is eliminated, as there is no axial thrust during the grinding process.

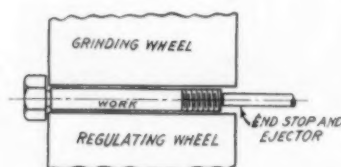
When grinding by the centerless method, the stock removal to be considered should be at the rate of 1 to 1½ cu. in. per min. per 15 hp. applied to the machine. These figures cannot be obtained on fragile work, of course, but they hold good on the average rigid work.

## Through-Feed Centerless Grinding

A diagrammatical set-up of the through-feed method is shown in Fig. 1. When grinding cylindrical work of short length, as illustrated, both the grinding and regulating wheels are usually 6 in. in width. Four work guides are provided as shown, in order to guide the work into and away from the grinding cut. The two regulating wheel guides, one on the entering side and one on the leaving side, must line up exactly with the face of the regulating wheel, so that the work does not deviate from a straight line in its passage through the machine. The axis of the regulating wheel is inclined from 2 to 5 deg. with the horizontal, and this inclination, together with the proper rotation of the regulating wheel, draws the work through the machine and past the face of the grinding wheel, the work moving in the direction indicated by the arrow, at the most economical rate of traverse for grinding wheel wear and finished accuracy of the work. The two work guides on



**FIG. 1**—Set-up of through-feed method of centerless grinding. With this, only straight cylindrical surfaces without interfering shoulders can be ground. The work is passed between the grinding and regulating wheels.



**FIG. 2**—The infeed method is usually employed for work having a shoulder, head or some portion larger than the ground diameter. It is also used for grinding multiple-diameters, and for finishing pieces having taper, spherical and other irregular profile.



# Process ▲ ▲ ▲

By A. D. MEALS

the grinding wheel side are not lined up exactly with the grinding wheel face, as they are provided for safety to prevent the work from accidentally leaving its path of travel through the machine.

## Infeed Method Applied to Headed Work

The infeed method, Fig. 2, is usually applied to headed work, such as bolts, etc., where the cylindrical body only is ground. Both grinding and regulating wheels are of a width that more than covers the length of the body to be ground. An adjustable end-stop is provided at the rear of the machine to prevent the underside of the head from touching the side of the grinding wheel. This end-stop also acts as an ejector at the finish of the grinding cut. The axis of the regulating wheel is inclined  $\frac{1}{4}$  to  $\frac{1}{2}$  deg. with the horizontal; this moves the work against the end-stop and holds it there during the grinding cut. When loading the work into or unloading the work out of the grinding position, the regulating wheel is moved with its auxiliary slide away from the face of the grinding wheel so that enough clearance is obtained to eliminate contact of the work with the grinding wheel face. This movement of the regulating wheel is obtained automatically or by means of a hand infeed lever on the machine.

## Grinds Straight Bars Up to 24 Ft. Long

Straight cylindrical work without heads can be centerless ground in any length up to approximately 24 ft. by the through-feed method. This work,

whether it is short or long, should be straight before passing through the machine. Especially is it necessary that before centerless grinding long bars be machine straightened, or at least straightened to the same degree as obtained by machine straightening.

If the long bars are not straight before grinding they will whip both on the entering and leaving sides of the wheels and the work will make contact with the corners of the grinding wheel, thus causing spiral marks to appear on the ground surface of the bar. Long bars up to 4 in. in diameter by 24 ft. long have been successfully ground by the centerless method. When grinding bars of such length, it is necessary, of course, to provide auxiliary supports at both front and rear of the machine, in order to properly support and align the bar before it enters and after it leaves the grinding cut. A long bar set-up is shown in Fig. 3.

Steel tubing, as well as solid steel bars, can be satisfactorily ground by this method. Some steel tubing having a wall thickness sufficiently strong to eliminate distortion under the grinding cut can be ground with practically the same depth of cut as that used on solid steel bars. Other tubing with a light wall thickness must be ground with a greatly reduced depth of cut per pass through the machine. Thus, for the same stock removal on thin-walled tubing as on thick-walled tubing, it is necessary to pass the work through the machine a greater number of times, which, in turn, reduces the net production obtainable.

Non-metallic tubes and rods are also ground by the same method but at a somewhat faster rate of produc-

ORIGINALLY limited more or less to short straight pieces such as rollers, centerless grinding has been developed to finish, within close limits and at comparatively high production rates, headed work, long bars and tubing, multiple-diameter shafts and spherical work. Cylindrical pieces having a contour on the outside diameter can also be ground satisfactorily even where the element of concentricity is present. Furthermore, the process is not limited to large quantity production, as is sometimes thought.

In addition to fundamental principles, advantages of the process, and the procedure in the centerless grinding of various types of work are outlined by Mr. Meals, who was formerly associated with Cincinnati Grinders, Inc., and has spent a number of years in design, application and sales engineering of centerless grinders.

tion than metallic tubes and rods. The same general grinding conditions apply, however, to both metallic and non-metallic tubes and rods.

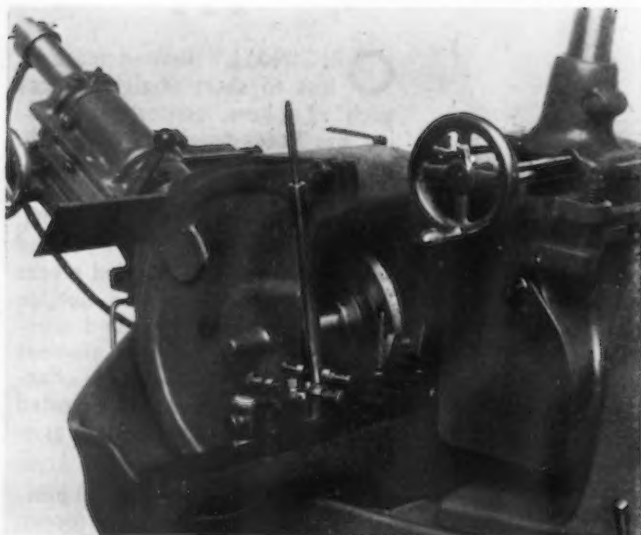
## Fractional Sizes of Tube and Bar Stock Readily Supplied

It is interesting to note that before the advent of the centerless grinder, it was impossible to grind work of a certain length and long tubes and rods. With the successful grinding of this class of work by the centerless method, it is now possible for steel mills to stock certain standard sizes of tubing and bar stock, and when orders are received for fractional sizes, to pass a bar or tube of the nearest oversize through the centerless grinder and reduce it to the required size. Both standard and fractional size stock can now be furnished to the consumer, and to much closer limits of accuracy as to size, roundness and straightness than heretofore.

To grind headed work, such as bolts,

FIG. 3—Long bar set-up. Straight cylindrical work without heads can be centerless ground in any length up to 24 ft. and in diameters up to 4 in. The bars should be straight before passing through the machine. Steel tubing and non-metallic tubes and rods can also be ground satisfactorily.





▲ ▲ ▲  
**FIG. 6—**Centerless grinding of cylindrical work having a contour on the outside diameter. The set-up is for fountain pen barrels, the profiled outside diameter of which must be finished concentric with the previously finished hole. This centerless grinding operation is in the "concentric grinding class."  
 ▼ ▼ ▼

valve stems, etc., the infeed method is used. The work is located in grinding position between the grinding and regulating wheel faces and on the work-support blade, either by hand or automatically. The distance between the two wheel faces must, of course, be great enough to permit clearance between the work and the grinding wheel face. After the work has been located properly, the regulating wheel, together with the work-rest block, the work-support blade and the work, are moved as a unit so that the work is moved into the grinding wheel face a predetermined distance. After the desired amount of stock has been removed from the work, the work, together with the regulating wheel unit, is moved away from the grinding wheel so that clearance is obtained between the grinding wheel face and the work. At this point, the work is automatically ejected toward the front of the machine by the ejector end-stop.

#### Grinding Multi-Diameter Work

The infeed method is also used to grind work having more than one diameter, such as multiple-diameter shafts the overall length of which is not over 8 to 10 in. Assuming that

the various diameters are to be ground concentric with each other, it is necessary to use both grinding and regulating wheels of sufficient width to span the overall length of the shaft. The grinding wheel face is dressed to the proper steps so that the various diameters are correctly sized. The regulating wheel face is also dressed to proper steps which will bear on the correct diameters of the work, so that rigid backing up of the work will be obtained and there will be no spring or distortion of the work during the grinding cut. It is necessary also to step the work-support blade so that bearing is obtained on the same diameters as those contacting with the regulating wheel face.

Dressing the grinding wheel and regulating wheel faces to steps or to irregular shapes can be accomplished by a so-called "profiling attachment," by means of which a master cam carrying the desired shape of the work properly guides the truing diamond across the wheel face. This attachment is shown in Fig. 4. The diamond, in turn, dresses the wheel face to the shape carried by the master cam. Thus the faces of the wheels can be redressed to compensate for wheel wear without any more trouble than if

the faces were dressed straight. The illustration (Fig. 4) shows an irregularly shaped piece of work ground successfully with the use of profiling attachments over both wheels.

Spherical work can also be ground satisfactorily by the infeed method. In this case, however, profiling attachments to properly dress the wheel faces are not employed; instead, a radius truing attachment is used on the grinding wheel, and the face of the regulating wheel is dressed straight. Point contact between the work and the regulating wheel face is sufficient to control the rotation of the work.

#### Infeed Method Used for Spherical Work

A good example of this class of work is the grinding of the ball end of a ball stud. Fig. 5 shows the infeed set-up for grinding ball studs.

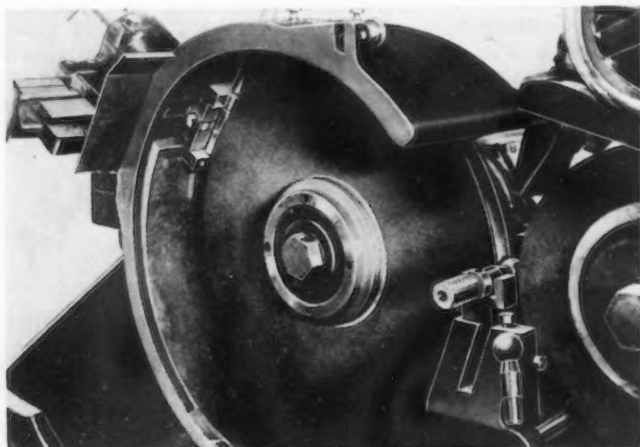
During the grinding cut, the stud end of the ball stud is supported in an outboard U support so that the axis of the work is in a horizontal plane and parallel to the axis of the grinding wheel spindle. The face of the grinding wheel, of course, contains a concave radius of proper depth to correctly size the finished ball end. The work is loaded to and unloaded from grinding position by hand.

Grinding of spherical work, such as golf balls, pool and billiard balls, bowling balls, etc., is accomplished with a somewhat different set-up. The face of the grinding wheel is dressed to the proper radius. The regulating wheel is not as wide as the grinding wheel, and is set on an angle of 15 to 20 deg. with its own axis. The face of the regulating wheel is also dressed to the proper radius.

The work is located in grinding position between the wheel faces by means of a special hand or automatically-operated elevating and lowering arrangement. The infeed method is used when taking the grinding cut. The regulating wheel rotates with a wobbling action, presenting all points on the periphery of the ball to the face of the grinding wheel, due to the continuously changing axis of rotation of the ball. This generating action insures the ball being ground to true spherical shape.

#### Concentric Grinding of Pen Barrels

Cylindrical work having a contour on the outside diameter can be ground satisfactorily, even though the element of concentricity is introduced. A good example of this class of work is shown in Fig. 6, which represents the set-up in grinding fountain pen barrels, the outside diameter of which is profiled and must be finished concentric with the previously finished hole. In this operation, the grinding and regulating wheel faces are dressed to the required shape of the outside diameter of the pen barrel by means of special cam-actuated pro-



▲ ▲ ▲  
**FIG. 5—**Infeed set-up for centerless grinding ball studs. A radius truing device is used to dress the grinding wheel to the required spherical shape.  
 ▼ ▼ ▼



filing attachments over each wheel. The work-support blade is also shaped to the required contour so that the pen barrel will have a solid bearing during the grinding cut and will not tend to tip up due to insufficient supporting surface.

The rough pen barrel containing the finished hole is slipped on to the end of a swinging mandrel, the outboard end of which is held between two pivot points mounted on a bracket that can be adjusted to suit the length of the mandrel and the barrel. This mandrel swings from a vertical position, at which point the pen barrel is loaded, down to a horizontal position, at which point the pen barrel is located in grinding position on the work-support blade, and between the profiled faces of the grinding and regulating wheels with enough clearance so that it does not touch the grinding wheel face. As the mandrel drops down it is positioned in a V-block located to just clear the sides of the grinding and regulating wheels. The side of the V-block on the grinding wheel side carries an angle approximately the same as the angle on the top of the work-support blade. On the regulating wheel side, the side of the V-block is vertical.

An infed cut is taken either by hand or automatically and, with the mandrel resting in the V-block, the outside diameter of the pen barrel is ground concentric with the hole to the required limits. As the grinding cut is taken, the mandrel itself does not revolve, but the hole in the pen barrel has enough clearance to permit

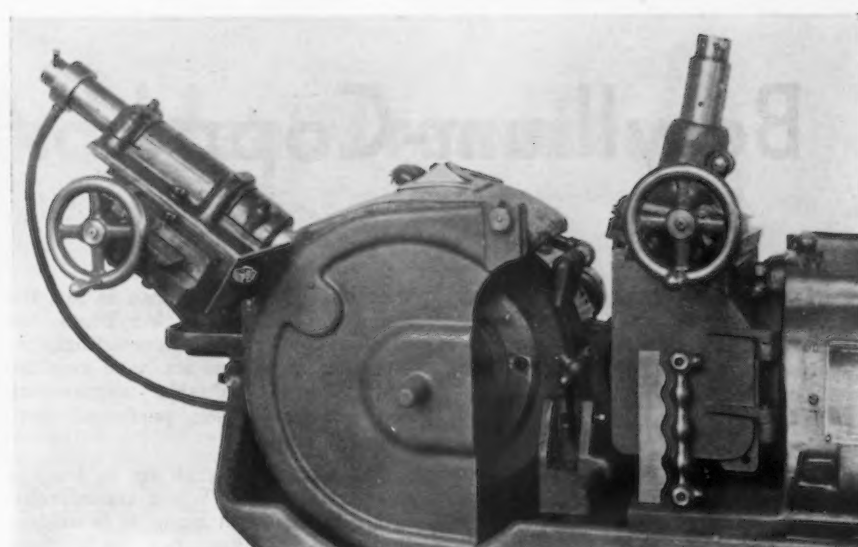


FIG. 4—A profiling attachment is employed for dressing the faces of the wheels to steps or irregular shapes. In the case of the irregularly shaped work shown, profiling attachments are used in connection with both the grinding and the regulating wheels.

the barrel to rotate on the stationary mandrel. The amount of this clearance must not exceed the limits of concentricity required on the outside of the pen barrel.

The large amount of stock removed from the pen barrel and the rapid rate of production requires that the ground off stock be carried away in the spent coolant. Usually plain water from the hydrant is connected to the coolant nozzle on the machine, and after passing the grinding cut,

carries the ground off stock through a connection to the sewer.

After the pen barrel has been centerless ground to a good finish and to the required shape in one cut, it is usually buffed on the outside diameter to that very high finish which appears on the commercial product sold by dealers.

The cap of the fountain pen is also ground by the same method as the barrel on the centerless grinder and at the same rate of production.

## All-Welded Hopper Car Has Cast Steel Underframe

A NEW all-welded hopper car, the first to be designed with a cast steel underframe, has been built by the Pullman Car & Mfg. Corp. in conjunction with General Steel Castings Corp. Several years ago the Pullman corporation built five welded steel hopper cars, but the underframes of those units were made of welded plates and structural members.

The load-carrying capacity of the new car is 70 tons and its light weight is only 48,600 lb. Center, end and side sills, body bolsters, hoppers and various supports are incorporated in the cast steel underframe which replaces over 170 separate parts and several thousand rivets which are found in the hopper car underframes of ordinary design. The weight of the underframe is about 13,000 lb. Other advantages expected are lower maintenance cost, extension of the period between car repairs, resistance to corrosion, longer life to the car and

as a consequence a longer revenue service.

The superstructure is built of structural shapes and pressed plates, all of which are welded together. The superstructure is in turn welded to the

cast steel underframe. Practically all welding was done by the electrical process using coated rods. Rivets were used only for safety appliances, brake parts, door hinges, draft-gear carriers and door spreaders.



All-welded hopper car with cast steel hopper frame.



# Beryllium-Copper Alloys—Their M

**E**DITORIAL comment in THE IRON AGE of Sept. 26, 1929, contained the following statement:

"Among the very new metals none are more fascinating than tantalum and beryllium. The former has properties that approach those of platinum. The latter is lighter even than aluminum, having a specific gravity of only 1.84. Yet it has a modulus of elasticity of 27,500,000 lb. per sq. in., almost up to that of steel, and its alloy of 70 per cent beryllium and 30 per cent aluminum has a tensile strength of 70,000 to 100,000 lb. per sq. in. Obviously this metal and its alloys may play a part in aircraft construction. On account of its high cost at present—about \$200 a lb.—there has not been much technical study of it as yet. It is suggested, however, that with a quantity demand for it the cost might be reduced to somewhere between \$25 and \$50 a lb. It is said, moreover, that the aircraft builder can afford to spend \$40 to reduce the weight of an airplane one pound."

Concurrently, Dr. H. W. Gillett, director of the Battelle Memorial Institute, Columbus, Ohio, was credited with the statement that "many are pessimistic on beryllium; I am among the most optimistic."

In the few years since these statements were published, no little advance has been made in the study of this new metal and its applications to metallurgy. The principal field

that has been delved into is not the aluminum alloys of beryllium but those of copper. Some exceedingly interesting developments have resulted and several valuable engineering products have been perfected—both wrought and cast.

The study of beryllium is truly a fascinating one. While considerable progress has been made, it is evident that the surface has only been scratched. Judged by the achievements which have been recorded in other fields, somewhat analogous, the future of this metal in the non-ferrous and the ferrous, or steel, industries is bright.

## Beryllium Compound with Other Light Metals

It is recalled that in the early days of aluminum, its reduction from the ore was a difficult problem and the consequent cost of the metal very high. This problem was solved. Today it is a most important metal in industry and is responsible for many startling developments in metallurgy. The same is true of magnesium.

A serious present disadvantage of beryllium is its cost. But this was true as well not only of aluminum and magnesium but also of vanadium and molybdenum; all now are much lower in cost than when first studied and each is an essential in the development of new engineering materials. Aluminum and magnesium have revolutionized some phases of the non-ferrous industry, while vanadium and

molybdenum have made possible alloy steel of marked value to engineers.

## The Metal and Its Reduction

The source of beryllium is the ore beryl, an aluminum-beryllium-silicate. It contains about 5 per cent beryllium (Be) and is said to be available in commercial quantities in most countries. The metal has a specific gravity of 1.85 and is one-third lighter than aluminum and one-sixteenth heavier than magnesium. Its melting point is around 2335 deg. F. and its atomic weight is 9.02.

Reduction of the metal from the ore is not easy or inexpensive. This is the present great drawback. The present process is electro-chemical-electrolytic fusion reduction of either the chloride or fluoride salts of the ore. In the United States the chloride method is used; in Germany the fluoride is understood to prevail. The process is analogous to the aluminum or the magnesium reduction processes. In the initial stages of any new development, commercial output of the new product is necessarily on a small or limited scale. This is true of beryllium. It is now, however, much lower in cost than in the earlier but still recent history of its development.

Considerable work has been done in Germany on beryllium and its compounds, particularly by the Siemens & Halske Co., whose products are imported into the United States by the Metal & Thermit Corp., New York. One American company is active in

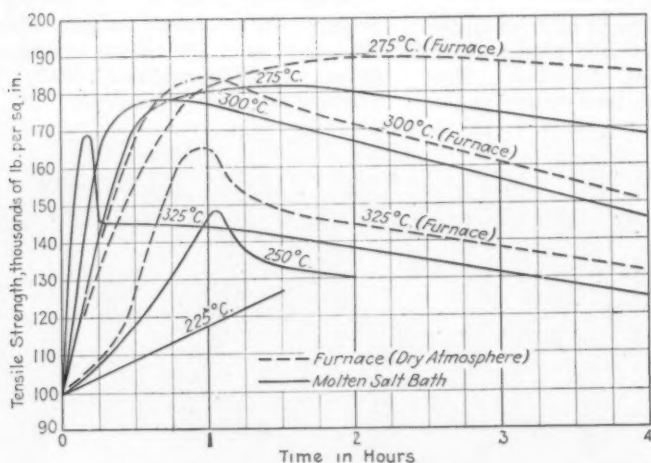
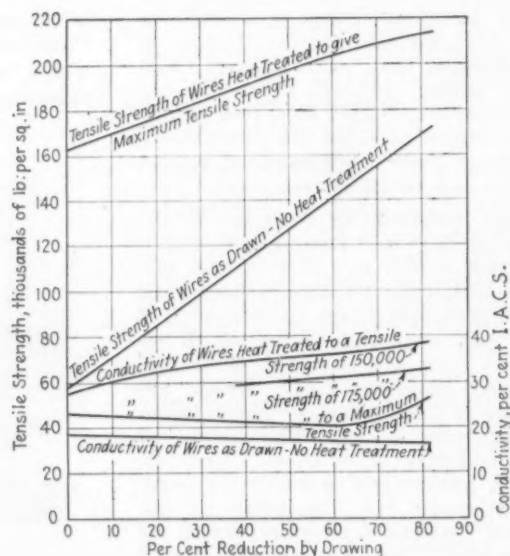


Fig. 1.—(Above) Effects of various heat treatments upon the tensile strength of beryllium-copper wire (2 per cent Be)

Fig. 2.—(At Right) Effects of various heat treatments and cold drawing on beryllium-copper (2 per cent Be) wire finished to 0.040 in.



# ir Manufacture and Heat Treatment

this field—the Beryllium Products Corp., of New York, which has a reduction plant at Marysville, Mich. At this plant, there is now being produced a product of beryllium and copper, called a "master alloy," and containing about 12.5 per cent Be and about 87.5 per cent copper. It has been given the name "Cuber." This alloy is quoted as follows:

Lots to 10 lb. inclusive.....	\$6.25 per lb.
Lots of 10 to 50 lb.....	4.25 per lb.
Lots of 50 to 200 lb.....	3.81 per lb.

Other products are also commercially available, such as beryllium-nickel as well as the metal beryllium. These products are available also by importation as indicated.

## Wrought and Cast Products Being Made

Most of the industrial applications of beryllium thus far have been in the non-ferrous industry. Two American companies are active in this field, the American Brass Co., Waterbury, Conn., and the Riverside Metal Co., Riverside, N. J. Some exceedingly interesting and industrially valuable products have been developed by these companies. The products are all fabricated or wrought.

Some commercial work has been done in the foundry field, castings of

By EDWIN F. CONE

beryllium-copper alloys having been made by one or two non-ferrous foundries, but this has not progressed so far as the rolled or wrought products. A pioneer is the American Manganese Bronze Co., Holmesburg, Pa. A paper on "Beryllium-Copper Castings," by the writer, was on the program of the American Foundrymen's Association annual convention in Chicago, June 20 to 23, and was reviewed in THE IRON AGE, of June 29.

The experience of the American Brass Co. and the Riverside Metal Co., has demonstrated that copper alloyed with from 1 to 2.25 per cent Be has the most advantageous practical properties and is the easiest to handle. Maximum physical properties are obtainable from the 2.25 per cent Be-Cu alloy, this composition being suitable for cold working. Properties of the alloy are varied by annealing, cold working and special heat treating. In fact, the heat treatment is one of the most interesting phases of the subject.

Introduction of the beryllium into the copper is accomplished by obtain-

ing the master alloy (12.5 per cent Be) from the producer, who furnishes the analysis of the beryllium content. Special precautions are necessary in melting, which is usually done in a crucible or an electric melting furnace. Beryllium being of itself a strong deoxidizer, the copper bath is usually treated first with such deoxidizing agents as boronic copper, calcium, lithium, silicon or magnesium. Beryllium has a great affinity for oxygen and would itself completely deoxidize the copper. But in order thus to prevent consumption and unnecessary waste of beryllium, the deoxidants above mentioned are preferably used. Free boric acid should not be used, though glass borax in the charcoal covering of the metal, which is always necessary, may be employed.

Some special precautions are necessary in melting and pouring the beryllium-copper alloys. To offset the cooling effect from the addition of the master alloy, the bath of pure copper is heated to just above 2200 deg. F. before the additions. After the additions of small pieces of the 12.5 per cent Be alloy, the bath is stirred with a graphite, plumbago, or nichrome rod with special care that the alloy does not float on top. Too active stirring is to be avoided because of the unfavorable effects due to absorption of

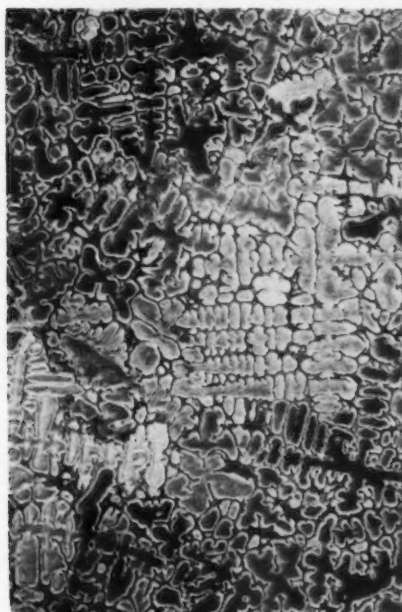


Fig. 3.—Structure of a 2.10 per cent beryllium-copper alloy in the as-cast condition; 75 diameters



Fig. 4.—Structure of the same alloy which has been wrought and fully annealed, followed by quenching at 800 deg. C.; 75 diameters



Fig. 5.—The same beryllium-copper alloy which has been precipitation hardened after being treated as in Fig. 4; 75 diameters



gases. No iron stirring rods should be used.

The next step is to cool or heat the bath to the correct pouring temperature, which should be as low as possible, from 1900 to 2000 deg. F., according to the beryllium content. Careful pyrometric control is necessary. Pouring into ingot molds or sand molds for castings should take place as soon as practicable at the proper temperature after additions of the master alloy. One should avoid pouring the alloy too hot and, if at too low a temperature, unfavorable results follow. All pouring operations are conducted with charcoal covering the metal.

#### Properties Enhanced by Heat Treating

After the metal has been poured and cooled, whether in the form of ingots or castings, it is ready for further processing, usually heat treating, especially in the case of castings, and either before or during rolling in the case of fabricated products, depending on the properties desired. The heat treatment of these alloys and the resulting properties are particularly interesting. Only a general outline can be furnished here.

The first step is to fully anneal the alloy. This is accomplished by heating it, whether as a casting or in some other form, to 1450 to 1500 deg. F. for about one hour and then quenching it in cold water. This puts the beryllium in solid solution and the alloy is in its softest condition. The tensile strength is then at its minimum with the elongation at its maximum. The metal in this condition has very few practical applications. It is by further heat treatment as castings or by cold rolling that its finest qualities are realized.

#### Alloys Belong to Precipitation Hardening Group

These beryllium-copper alloys belong to the class which is susceptible of precipitation hardening—similar to the aluminum and magnesium alloys. By special treatment, very high tensile strengths with Brinell hardnesses up to 400 are possible. Other properties are commensurate.

In the case of beryllium-copper castings, which usually contain 2.50 per cent Be, the precipitation hardening treatment consists in heating the annealed alloy to 525 to 575 deg. F. for 2 to 3 hr. followed by normal-

izing, cooling in the air. This bestows on the castings the highest physical and other properties as well as the greatest hardness.

For fabricated or rolled products, it is customary, according to the practice of the American Brass Co., to apply the precipitation hardening treatment after the annealing or after cold working following such annealing. This is entirely practical with ordinary equipment. The fabricated alloy is placed in a furnace where it is held at 500 to 600 deg. F. for a definite period. Depending on the temperature and the composition, the hardness of the alloys is controlled by the length of time in the furnace. Too long a treatment renders the alloy soft while too short a time at a high temperature is not so productive of good results as a lower temperature over a longer period of time. If a salt or oil bath is used, less time to effect the hardening is required than when dry atmosphere is used.

A chart, Fig. 1, prepared by the American Brass Co., reveals certain effects of heat treatment of a 2 per cent beryllium-copper wire. The physical properties are also further affected by different stages in the cold rolling accompanied by annealing or normalizing. Some of the physical results on the rolled alloys and on the castings of beryllium-copper alloys, as determined by some of the companies already mentioned, are found in the table. Another chart, Fig. 2, reveals the effects of various heat treatments upon the tensile strength of beryllium-copper.

#### Microstructure of the Alloys

Through the courtesy of Dr. W. H. Bassett, metallurgical engineer, American Brass Co., it is possible to reproduce herewith photomicrographs of one of the beryllium-copper alloys which is representative. They reveal the structure in the as cast, in the fully annealed wrought alloy (solid solution), and in the precipitation hardened condition. Fig. 3 shows the structure of the chilled casting as usually made for rolling; Fig. 4 reveals the structure of the wrought metal which has been fully annealed so that it is entirely homogeneous. The specimen was quenched from 800 deg. C. and represents solid solution. Fig. 5 shows the structural condition of the alloy after precipitation hardening, following the treatment given to the material represented by Fig. 4.

#### A Nickel-Beryllium Alloy

Another alloy of beryllium, now available commercially and similar to that with copper, is a nickel-beryllium "master alloy" containing about 12.5 per cent Be. Some valuable results are predicted for this in applications similar to the copper mixture, particularly as soon as the cost is lowered. It is suggested that the nickel alloy may be introduced into such nickel

Table of Physical Tests of Beryllium-Copper Alloys

#### I.—WROUGHT OR ROLLED PRODUCTS:

	Johnson's Elastic Limit, Lb. per Sq. In.	Tensile Strength, Lb. per Sq. In.	Elongation in 2 In., Per Cent	Rockwell Hardness No.	Young's Modulus, $\times 10^6$
<b>1.5 per cent beryllium:</b>					
Fully annealed.....	49,900	64.5	B25	...	...
Rollled 6 Nos. hard.....	99,000	4.0	B96	...	...
Same, heat-treated (precipitation hardened).....	128,000	11.0	B104	...	...
<b>2.0 per cent beryllium:</b>					
Fully annealed.....	15,000	59,000	65.0	B42.5	15.2
Rollled 6 Nos. hard.....	79,000	112,000	4.0	B100	16.0
Same, heat-treated (precipitation hardened).....	132,000	176,000	2.5	B113	17.9
<b>2.5 per cent beryllium:</b>					
Rollled 1½ Nos. hard.....	64,000	110,000	10.0	C22	16.3
Same, heat-treated (precipitation hardened).....	116,000	196,000	3.0	C42	19.0

#### II.—CAST PRODUCTS:

Per Cent of Beryllium	Elastic Limit, Lb. per Sq. In.	Tensile Strength, Lb. per Sq. In.	Elongation in 2 In., Per Cent	Reduction of Area, Per Cent	Brinell No.
<b>"As-cast" condition:</b>					
1.79	47,130	60,200	5.0	11.6	119
1.79	38,200	63,400	9.0	13.1	100
1.36	33,400	41,500	4.0	9.7	136
2.19	43,600	62,200	14.0	20.0	109
2.19	39,100	47,100	7.0	13.0	93
2.19	51,800	72,200	10.0	22.0	158
<b>Annealed condition:</b>					
1.67	16,810	41,100	29.0	31.4	54
1.79	15,800	33,400	16.0	22.2	65
2.19	22,800	39,250	11.0	22.0	86
2.19	22,150	40,600	13.0	25.0	70
2.45	28,400	57,200	6.0	13.0	143
<b>Precipitation hardened at 575 deg. F. for 3 hr.:</b>					
1.79	39,000	71,100	3.0	5.5	119
2.19	84,800	104,000	1.0	0	444
2.19	87,600	116,600	1.0	0	415
2.45	93,400	117,300	1.0	0	415
2.45	97,700	117,000	1.0	0	415
<b>Precipitation hardened at 575 deg. F. for 24 hr.:</b>					
2.00	20,790	106,300	1.0	...	...
1.67	49,300	69,600	3.0	3.1	183
1.79	74,200	95,400	2.0	1.2	207
2.50	83,200	100,000	1.0	0	269
1.57	73,600	91,300	2.0	0	321
1.57*	74,200	99,600	3.0	0	331

\*Heated for 7 hr.

Results in this table are from records of the Chase Copper & Brass Co., Waterbury, Conn., the Bridgeport Brass Co., Bridgeport, Conn., and the American Manganese Bronze Co., Holmesburg, Pa.

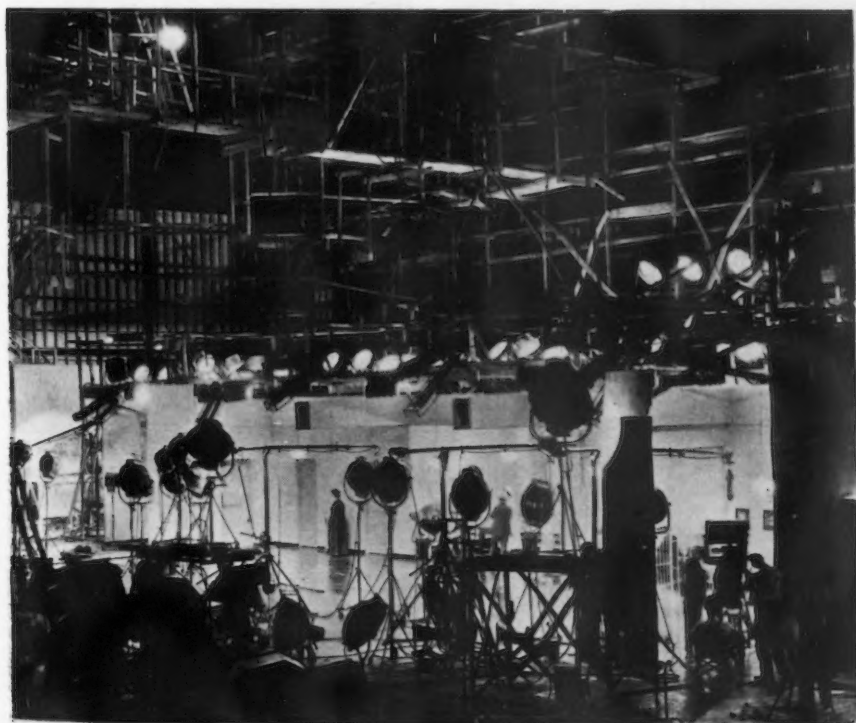
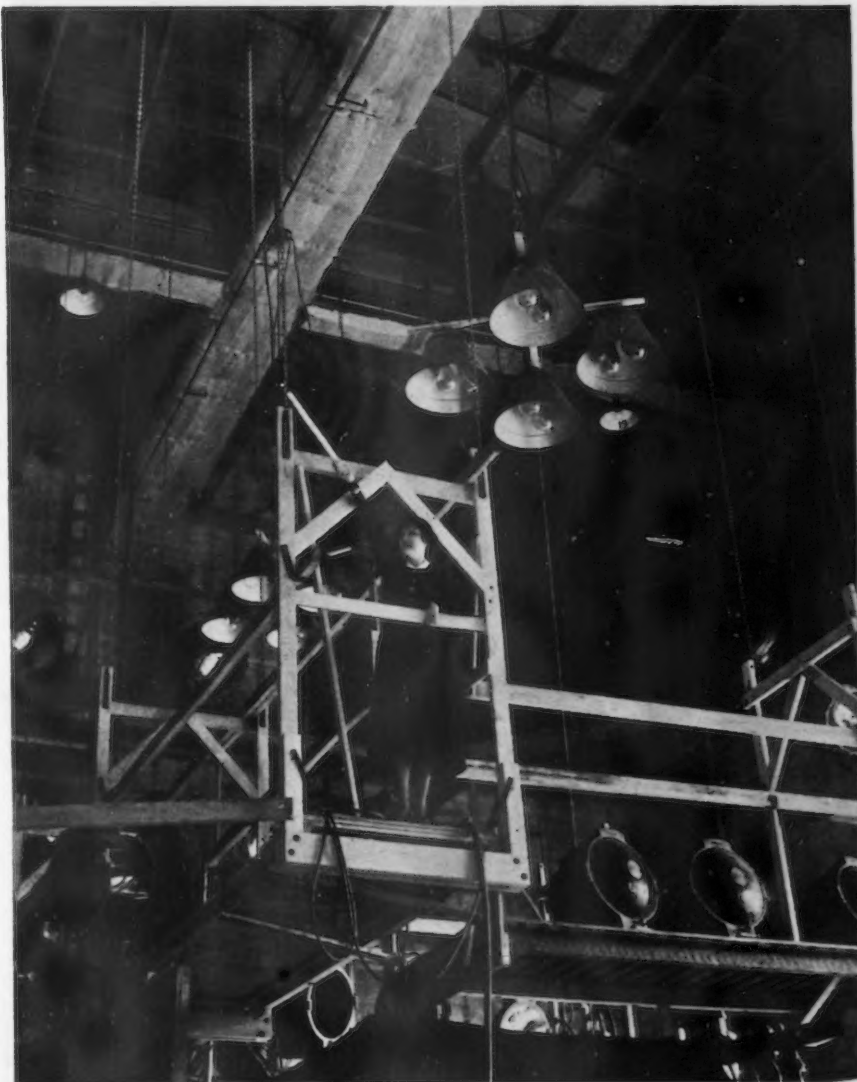


## Steel Supplants Wood for Scaffolding in Hollywood Studios

▲ ▲ ▲

**A**FTER a most successful inauguration by the superintendent of construction at RKO-Radio Studios, Hollywood, Cal., steel chains and wire mesh are fast replacing wood for use in studio scaffolding. In adopting chains as standard studio equipment one company has reduced framing costs by more than one-third, which represents a yearly saving of over \$10,000. In addition, fire hazard has been minimized, acoustics improved, and ease and speed of construction and razing of "sets" greatly increased.

A given motion picture may require from 15 to 100 "sets," together with extensive lighting platforms and catwalks. The lighting arrangements must often be rearranged and varied in height. Heretofore this had entailed great time loss and consumption of many feet of lumber. The "shooting" of a typical scene showing its accompanying maze of cumbersome and expensive overhead scaffolding is shown below. To the right appears a similar stage having platforms faced with steel mesh and supported by steel chains. The catwalks and lighting platforms are mill-



built in standard sizes, and rigidly braced and fastened together at several points with  $\frac{3}{8}$ -in. bolts. Lengths of No. 6-0 chain are hooked to ceiling girders with iron stirrups and fastened with safety catches to forged iron hooks permanently fastened to the platforms. Simple strap iron supports hold the hand-rails in place. Lighting platforms are faced with hardware cloth on the underside to prevent objects from falling on the players beneath.

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Tapping a 10-ton heat of rustless steel made by the direct process in England from American chrome ore.

## British Rustless Steels from California Ore

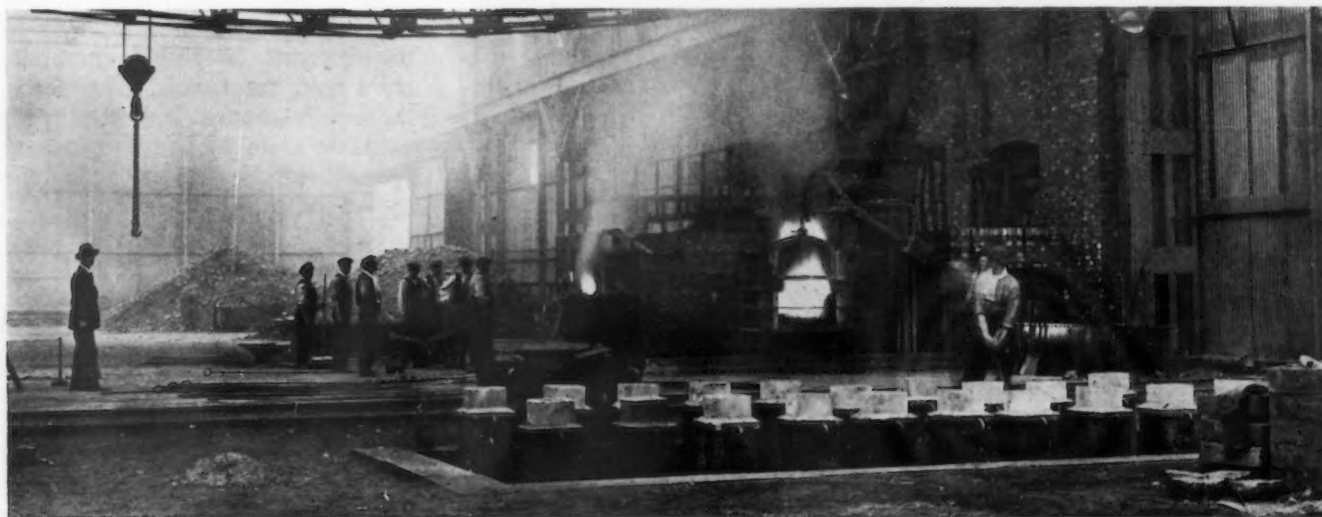


**A** BRITISH company is making rustless steels from California ore. The company is the Darlington Rustless Steel & Iron Co., Ltd., Darlington, England. The process is the Wild direct process of making steel from chromite ore. There are no deposits of chrome ore in the United Kingdom.

The Darlington company owns mineral rights in California of approximately 1560 acres. This property is situated about 30 miles from Sacramento, and about 9 miles from the nearest railroad terminal, which is at Folsom. The mine is connected to the railhead by means of excellent roads and the Southern Pacific Rail-

way Co. has granted special freight rates for rail haulage. Arrangements have been made for moving-belt transshipment of the 54 per cent chrome concentrates from the San Francisco terminal direct to the holds of boats which ply between that port and the United Kingdom.

The estimated minimum yield of the



The furnace, ingot molds and American ore piles in the plant of the Darlington Rustless Steel & Iron Co., Ltd., England.



ore body is 750,000 tons of concentrates from 2,000,000 tons of mine ore. The present equipment of the mine provides for an annual production of 30,000 tons of concentrates. The present demand of the Darlington works does not exceed 6000 tons a year, so that the mine's output would meet a five-times extension of the furnace plant over a period of 25 years. The ore is low in silica, readily lending itself to concentration.

The importation of chrome ore into the United States last year was not less than 300,000 tons, so there is an indicated ready market for the surplus concentrates. In this connection it is interesting to note that the world production of chromite in 1929 was about 590,000 tons as against 443,000 tons in 1928, about 199,000 tons in 1923, and about 325,000 tons in 1918 with as low as 21,000 tons in 1892. The 100,000-ton mark was not exceeded until 1904 but at no time since has it been less.

The Darlington company is operating a 10-ton Heroult electric furnace, described as able to turn out at least five charges in 24 hr. with a cur-

Brand	Four Grades of Stainless Iron			
	Chromium	Carbon	Silicon	Nickel
Defrust .....	12 to 14	Under 0.10	Under 0.75	Trace
Special defrust.....	16 to 18	0.10 max.	0.75 max.	Trace
Defstain .....	17 to 19	0.06 to 0.18	0.75 max.	7 to 9
Defheat .....	25 to 30	0.20 to 0.25	0.75	Trace

rent consumption of not more than 650 kwhr. per ton of steel produced. A feature is that the furnace is controlled hydraulically.

It is believed that this is the first furnace in Great Britain to be equipped with electrically-operated hydraulically-controlled electrodes on the Tagliaferri principle. Two turbine pumps, one a standby, deliver water at 70 lb. pressure for operating the electrodes. The system of regulation comprises a combined hand and automatic regulator, and hand-regulation devices for the commutation of automatic regulation to hand regulation. Power, furnished by the Darlington company is brought to the furnace sub-station at 6000 volts. Life of the roof is 50 to 60 heats with

that of the lining no less than 100 heats.

Ingots ranging from 11 to 35 cwt. are being cast. A comparatively small head is used and the ingots are stated to be singularly free from pipes. Swing grinders for cleaning the surface before rolling as well as a number of pneumatic chipping hammers are part of the equipment. Four grades of stainless iron are being made as shown in table above.

To cope with an increasing demand, the company has found it advantageous to cast in larger ingots than at first was the custom and now some weighing just over 6 tons have been made. The company has installed a Bliss cluster mill to produce highly finished stainless sheets.

## Flame Cuts Series of 208 Holes in 1/2-In. Steel Plate

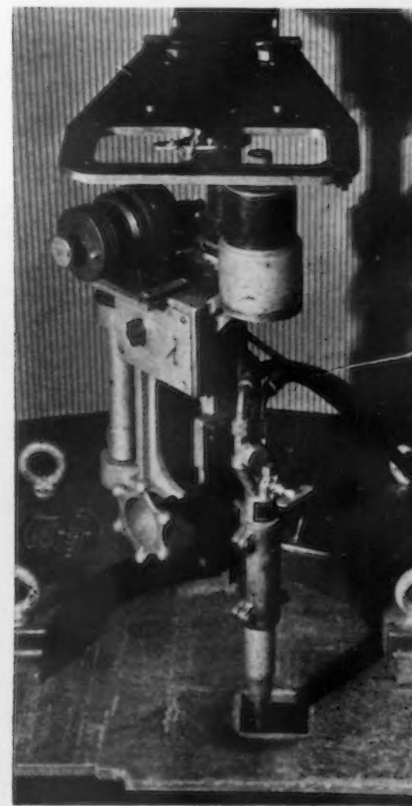
CONFRONTED with the problem of cutting a large number of square holes in steel plate, a manufacturer of electrical heating apparatus, after some preliminary experimental work, adopted the oxy-acetylene method here illustrated. The job called for a total of 208 3-in. square holes in 1/2-in. plate. The arrangement of the holes for the most part was symmetrical, consisting of groups of four holes each. The cutting machine is the Camograph made by the Air-Reduction Sales Co., New York. It is of standard type except that a reversible cam was introduced to make it possible to cut four holes with one set-up, placing the axis of the cutting machine in the center of the group.

The method of starting the cut of each hole may be seen in the illustration. The cut was started at a point within the square. The cutting tip then moved back to engage the controlling cam which it followed until the square hole had been completed. Hinges at the center enabled the control cam to be swung up and over to the opposite side for cutting the other two holes of the group. After cutting each hole the cam was raised slightly to permit removal of the magnetized roller. It was then transferred to a new position ready for cutting the next hole.

The machine was lined up for each group by placing the machined edges

of its base on a base line marked out on the work. This base line was placed in such a position that the axis of the machine came exactly between each set of two holes, which meant that after cutting the first two of a group the other two were automatically positioned by merely reversing the controlling cam. The cutting speed was 12 in. per min. and the entire

job took 9 hr. The oxygen pressure was 25 lb. and the acetylene pressure, 3 lb. per sq. in. The total consumption of these gases was: Oxygen 385 cu. ft. and acetylene 75 cu. ft.



The machine for cutting the series of 208 3-in. square holes in 1/2-in. plate was equipped with a reversible cam, as shown in view at right. The cut was started at a point within the square as shown in view at left.





View from the rear of the Stran-Steel house at the Century of Progress Exposition (the front appearing on page 25, *The Iron Age*, July 27), shows well the appearance of the porcelain enameled panels. ▲ ▲ ▲

## House Uses Framework of Formed C

**A** TYPE of steel house is being offered by Stran-Steel Corp., Detroit. This company is not in the construction business but takes the plans for a house and cuts the steel framing members so that only bolted connections are made in the field. The work on the site is performed by carpenters.

The steel framing members are made of cold-rolled strip. Sill plates are channel sections, punched for anchor bolts and perforated along both legs on 1-in. centers, so that the stud ends drop between the upturned flanges of the channel; stove bolts, of about 3/16 in. size, hold them in place. Each bolt is fitted with a lock

washer. The upper sill plate is placed with legs or flanges turned down, and clips are used on top of this plate if studs for a second floor are needed.

Studs are made of two cold-rolled channel sections placed back to back. These sections are double riveted together on 8-in. centers. The backs of the channels are corrugated in a convex and concave manner to provide a corrugated grooved space into which nails can be driven. The corrugation locks the nail in place. No. 8 and No. 10 common wire nails are used. The sections are cold formed from No. 16 gage cold-rolled strip. All steel furnished is prepped in rustproofing enamel. These steel joists and studs eliminate the termite problem.

Houses using this construction are not of the conventional pre-fabricated type for the reason the frame can be taken off the drawings as prepared for any type of house wanted. Wooden door frames and doors may be used if desired. In fact, the purpose of this steel house is not to wipe out wood except for structural purposes.

A house of this type is on exhibition at "A Century of Progress," Chicago, where visitors are going through it at the average rate of 7500 a day. A picture of it was reproduced on page 25 of *THE IRON AGE*, of July 27. It is of a size that would originally be designated as a 7-room house with two baths. It is built with a one-car garage attached and without basement. Its total cost erected on the



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**B**RACE rods with turn-buckles are removed after the siding is applied.  
▼ ▼ ▼

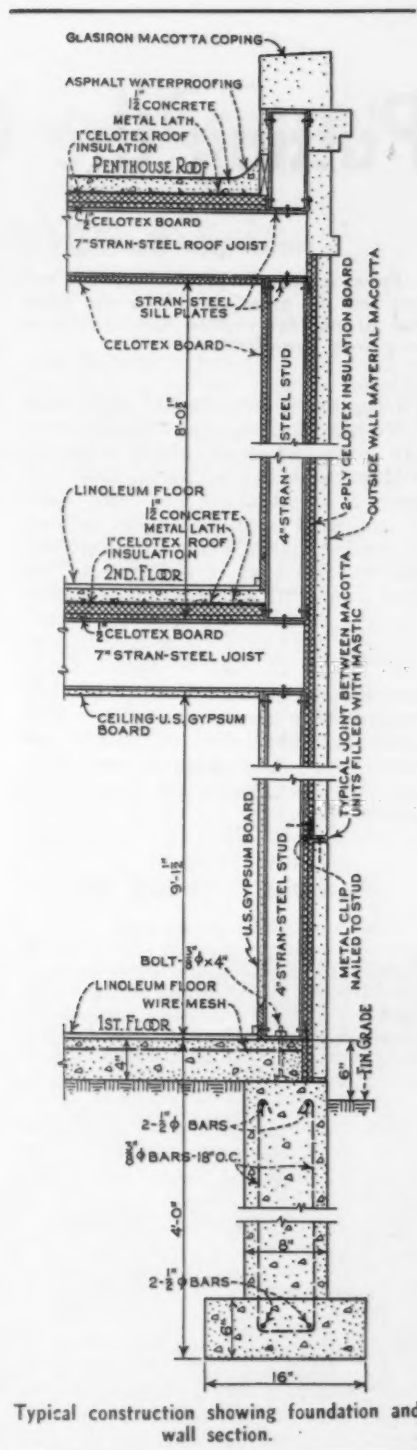
exposition grounds was \$9,000. Eleven tons of steel was used.

The exterior of this Century of Progress house is covered with Glasiron Macotta slabs, 1½ in. thick, 2 ft. wide and 2 to 8 ft. long. This material consists of a layer of tough, light-weight Haydite covered with thin-gage steel, which has on its exterior surface a weather resisting coat of porcelain enamel.

After 1 in. of Celotex insulation has been nailed to the outside of the Stran-Steel frame work, the Glasiron Macotta is then nailed on by means of right-angle metal clips, and the joints are sealed with mastic tape. The roof of the house is insulated with Celotex and is covered with three-ply roofing laid in pitch, on top of which Ludowici tile has been applied. The interior walls of the downstairs rooms are covered with large size Sheetrock nailed directly to the studs and the

The Good Housekeeping-Stran-Steel house at the Exposition is a trim, flat-roofed dwelling with a terraced roof, providing an out-door living room for warm weather, reached from the house by passing through a large, many-windowed sun-room. This solarium is the only room on the second floor, and since it is open to the air on all four sides, it may be used for a recreation room by day and a family dormitory by night. Because the main rooms of the house are all arranged on the first floor, there is no basement; the furnace room, laundry and service being conveniently located between the kitchen and the one-car attached garage.

The Glasiron Macotta covering is a product of the Maul Macotta Co., faced by Pemco architectural porcelain enamel, from the Porcelain Enamel Mfg. Co., fused on Toncan Iron, a product of the Republic Steel Corp.



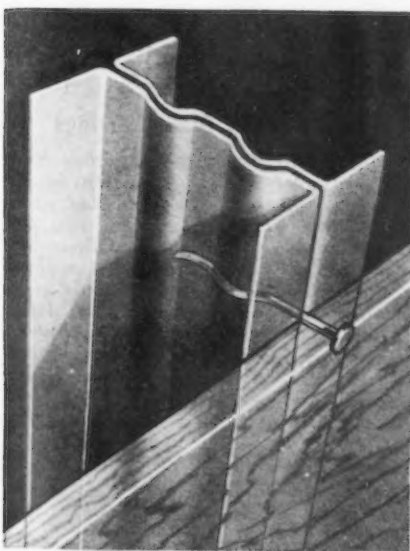
Typical construction showing foundation and wall section.

blasted thereby requiring a less elaborate exhaust system. In addition, compressors, tanks, water separators and coolers are all eliminated. The Wheelabrator, of course, operates at atmospheric pressure which lessens dust hazard as created by compressed air escaping from the blasting chamber. The makers also claim greatly reduced power cost as compared with compressed air equipment of similar capacity. The Wheelabrator is designed to handle all types of cleaning work. The speed with which work is handled is much greater than with any other type of cleansing agent whether it be acid pickling, sand blasting or tumbling.

## ed Cold-Rolled Strips

joints are closed with a material which makes them invisible when the walls are painted or papered.

No plastering was done on the interior of the house, nor on the exterior. Except in the laying of the concrete floor slabs (1½ in. thick over metal lath) no water was used in its construction. This assures rapid erection even in cold weather.



**SIDING**, roof and floors are nailed to the Stran-Steel frame members, the nail driven between the two light channels being crimped by the corrugations of the channels.

Edges of the enameled face of the Macotta panels are protected with a small bead of Enduro stainless steel, making a durable, weather-proof panel of enduring porcelain.

## Machine Is Designed to Supplant Sand Blasting

**A**T the American Foundrymen's Convention in Chicago the American Foundry Equipment Co., Mishawaka, Ind., introduced to the trade their Airless Wheelabrator, an entirely mechanical abrasive cleaning machine, said to be more efficient and much more economical in operation than sand or shot blasting. The Wheelabrator consists essentially of a motor-driven hollow wheel with small rectangular openings on its periphery. A granulated abrasive is gravity fed from a storage hopper to the wheel and is ejected through the slits on to the work, which passes below. By using several mechanical elements the abrasive escaping from the revolving wheel acquires a high speed from a combination of centrifugal, tangential and aero-dynamical forces. Notwithstanding its compactness the Wheelabrator is claimed to equal in production and quality of cleaning more than six abrasive blast nozzles of ¼ in. size at 90 lb. air pressure. Further economies are effected, since the abrasive disintegrates less rapidly than when



# Putting the Question Mark to Work

## Ideal Size of Pig

*From a metallurgical viewpoint can you tell me what would be the ideal size of pig for cupola operation in a gray iron foundry?*

P. P. C.

IN our experience we find that when we mix steel scrap having an average cross-section of about 1 sq. in. with pig iron in the cupola, they both come down at about the same time. Of course it is an advantage to have the entire charge come down together, and we feel that if we were to use steel scrap with a smaller cross-section it might be advisable from the metallurgical point of view to use smaller size pigs. In fact it seems fairly plausible to assume that if we had scrap having an average cross-section about half that used at present we then should find it advantageous to use pigs about half the size of the present pigs.

H. P. B.

## Protection of Forging Dies

*Can you advise us of some way to protect the impression in a forging die from getting scaled and dirty through hardening? Such scaling often necessitates a lot of expensive subsequent lapping. The steel used is air-hardening and is heated to about 1900 deg. F.*

Hackensack Specialty Mfg. Co.

IN order to prevent scaling of a die in heat treatment, we recommend using a compound made up as follows:

Aluminum silicate	....21 per cent
Sodium chloride	.....23 per cent
Sodium hydrate	.....5 per cent
Sodium silicate	.....31 per cent
Water	.....20 per cent

This should be ground and mixed to a stiff paste. The die or tool to be heat treated is first preheated to 1550 deg. F. It is then rolled in the compound until all surfaces are covered. After this, it is sweated as usual and quenched in oil. The composition is removed with a light sand blast. The sweating can be seen beneath the transparent covering. The parts should be drawn at 1075 deg. F. and held for 1 hr.

The Midvale Co.

## Corrosion of Stainless Steel

*Is there any appreciable difference in resistance to atmospheric corrosion between non-magnetic and magnetic stainless steel?*

T. A. M.

ALL of these steels acquire a superficial coating that does not grow to greater thickness once it has definitely formed. Pitting may occur if

## FIRST BIRTHDAY

THIS issue marks the completion of a year of the question and answer service offered on this page. During this time many hundreds of questions have been answered direct, in addition to the answers published, and the subjects covered have varied from proper plant illumination to the best method of salvaging milk cans. Nearly 1000 firms have taken advantage of this service which is offered without obligation to readers of THE IRON AGE. Address questions or answers to Forum Editor, Iron Age Publishing Co., 239 West 39th Street, New York.

manufacturing has not been well carried out and there are local inhomogeneities such as large slag inclusions. Except for these facts I would state that the 12 per cent chromium low-carbon steel is slightly inferior and that there is no appreciable difference in atmospheric behavior between the low-carbon 18 per cent chromium steel and the chromium-nickel steel of the 18-8 type.

Vanadium Corpn. of America.

IT is impossible to give any definite ratio of the corrosion resistance of magnetic (chromium only) and non-magnetic (chromium and nickel) steels because there is no scale by which we can measure corrosion resistance. Experience has indicated, however, that the chrome-nickel alloys such as Allegheny Metal (18-8 stainless) have many times more resistance to atmospheric attacks than the straight chrome irons.

Joseph T. Ryerson & Son, Inc.

## Spot Welding Brass

*Is it practical to join thin brass stampings by spot welding and if so what type of machine should we use?*

B. M. Co.

BRASS sheets up to 16 gage have been successfully spot welded but the technique for heavier sheets is still in the development stage. The zinc content in the brass should be low in any case. A machine made by the Thomson-Gibb Electric Welding Co., New York, is now handling spot welding of thin brass.

M. E. R.

## Brazing Alloy for Copper Parts

*Can you tell us who makes a brazing alloy known as Sil-Fos? We understand that copper parts may be joined with*

*this alloy to produce a tensile strength of 33,000 lb. per sq. in.*

W. M. Lamkin.

SIL-FOS is made by Handy & Harmon, New York City.

S. M. C.

## Metallurgical Specimens

*I desire to cut metallurgical specimens from hardened steel bars without heating or changing the hardness of the material. Can you suggest how this might be done?*

N. C. A.

SOME companies cut specimens by a broaching process using tungsten carbide tipped broaches. One of the simplest ways, however, is to cut the disks with thin grinding wheels. The Campbell submerged cutting machine will do this with a minimum of lost material and without heating.

C. C. A.

## Nitriding Alloy Drills

*Do you know of any way of nitriding high-speed drills and cutting tools?*

N. D.

WE have had considerable success in nitriding 18-4-1 alloy steel drills. We heat-treat these and finish them in the ordinary way and then place them in a standard nitriding box to produce a case of about 0.005 in. When drills nitrided in this manner are resharpened, the cutting edges move down the flutes toward the shank, and since the flutes are nitride-hardened the drills also have nitrided cutting edges.

American Chain Co., Inc.

## Seasoning of Steel Castings

*One of our products is a rather complicated steel casting on which we do rough machining. We have had some complaints of warping. Can you tell me whether any change of dimension is apt to take place when green castings are machined and shipped shortly after leaving the foundry floor? Would the difficulty be corrected by seasoning, thus allowing time for a reorientation of crystals? Would an annealing or normalizing be advisable after our rough machining?*

W. W. M.

WE would recommend a draw to approximately 1000 deg. F. after the rough machining. This should completely relieve the strains and the finished machining may then be carried out without any danger of warping.

Chapman Valve Mfg. Co.



# Combination-Type Dies Reduce Cost of Die-Cast Electrical Appliance Parts

**T**HE United Electrical Mfg. Co., Adrian, Mich., is primarily a manufacturer of electric fans, a highly seasonal product. To round out its manufacturing schedule and thus assure economical production-quantities, the company has recently expanded its line to include other appliances built around an electric motor. By extreme simplicity in mechanical design, interchangeability of parts and modern fabrication methods, it has developed a series of low-priced stationary and oscillating fans, an electric hair dryer, and a motor-driven food mixer that will carry a factory guarantee of one or two years. It is expected that production of these items will be very large; this together with low cost production methods will enable dealers to offer these products at unusually low prices, particularly the stationary fan and the food mixer.

The most interesting production economy effected by the company is in the motor housings, which are die cast, the metal used being a zinc alloy containing 4 per cent aluminum, 3 per cent copper, 0.30 per cent magnesium, and 92.07 per cent high-grade zinc. These castings are of very light, thin-wall type. Eight separate housing pieces go into the assembly of the electric appliances listed above, and all eight are made in the two dies shown in Figs. 1 and 2. Change in the dies to produce the different housings is made by means of inserts and plugs.

In Fig. 1 the insert A (at the extreme left) replaces the one at B to produce a full round case instead of the one with the bracket shown between the two parts of the die. The plugs C (at the extreme right) are used when producing motor housings having self-aligning type bearings;

By J. A. SCHULTZ, JR.  
President, Schultz Die Casting Co.,  
Toledo, Ohio

they replace plugs D (shown in the left-hand part of the die) which are used to produce bearings of the solid, stationary type. In Fig. 2, the insert A (at the extreme right), when used in place of B, produces a full round case instead of the one with a boss, which is used on the oscillating fan.

The dies themselves are made of 0.35 carbon steel, heat treated; the inserts are of the same material. Impressions in the face are very accurately machined, the machining being done while the steel is in the annealed condition. The final operation is a

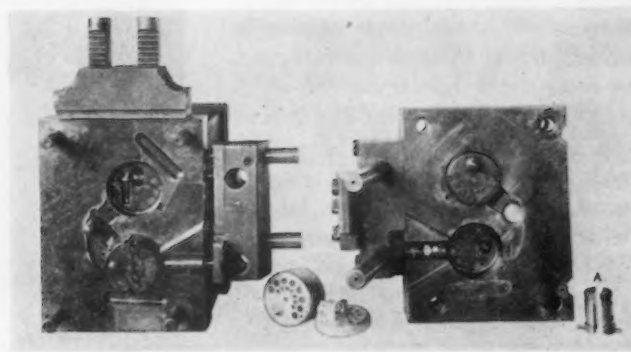
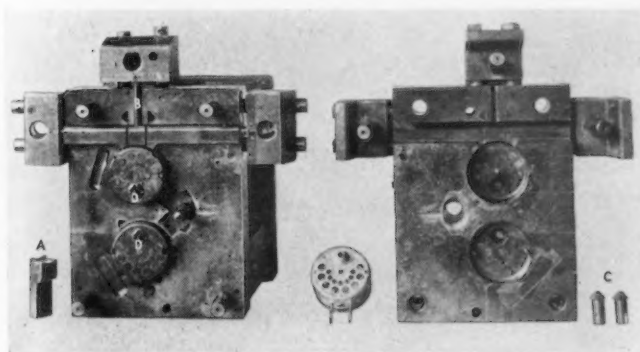
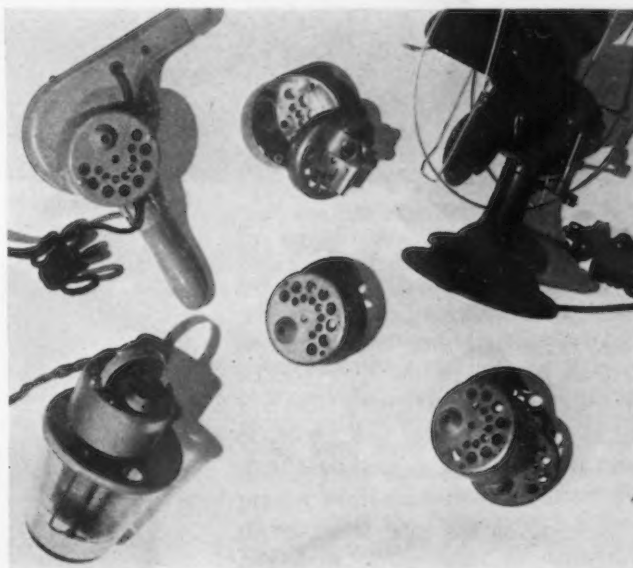
very careful polishing. The various inserts or plugs are quickly removed and replaced without removing the die from the casting machine. Die casting metal temperatures are 785 deg. F., and pressures are 1590 lb.

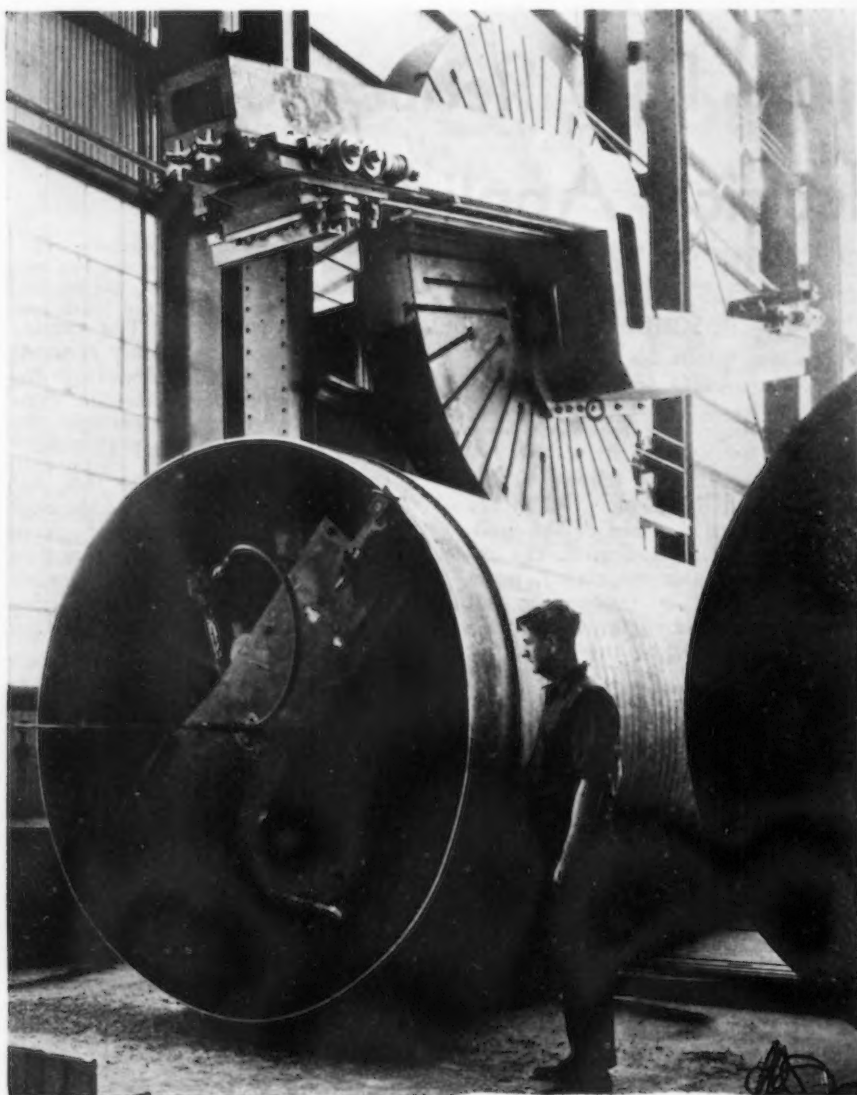
These variations in the dies for producing motor housings for the electrical appliances illustrated have made for very substantial economies in the capital outlay, and similar economies may be made in other lines by ingenious design of die casting dies.

In designing for economical production, it is also important to achieve a good surface finish with a minimum of grinding or buffing. This can be readily obtained on zinc die castings by carefully polishing the dies and by use of the proper temperatures and pressures in the casting process.

**ORIGINALLY** a manufacturer of fans, a highly seasonal product, the United Electrical Mfg. Co. expanded its line to include a food mixer and a hair dryer, and thereby achieved more economical production quantities (at right).

Die casting dies designed to permit production of different types of electrical appliance motor housings merely by interchange of inserts or plugs are shown below. Fig. 1 is at the left, and Fig. 2 at the right.

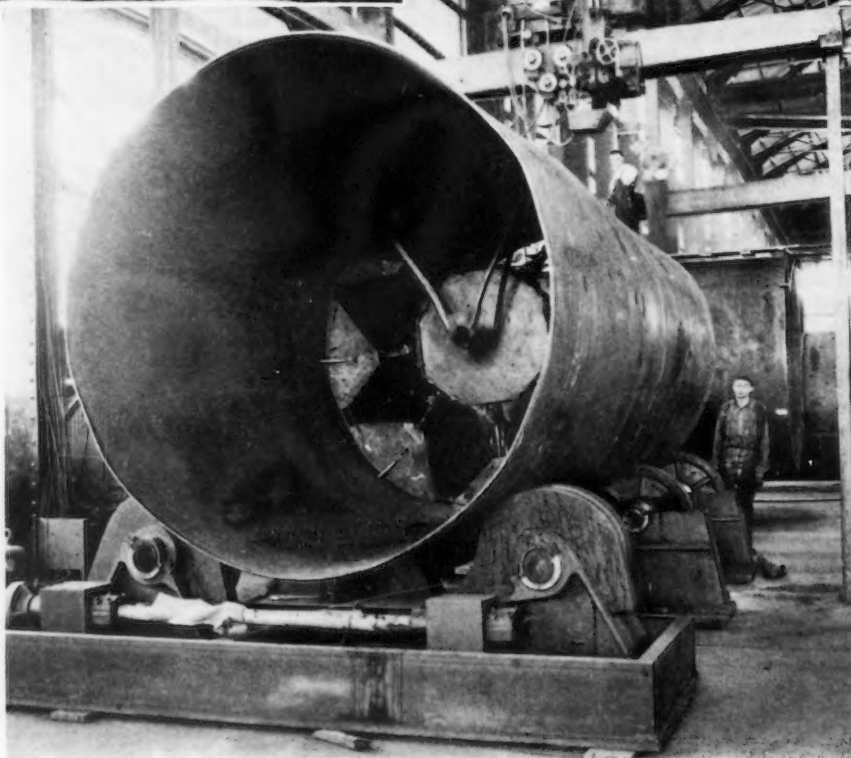




## Fabricating Pipe at Boulder Dam

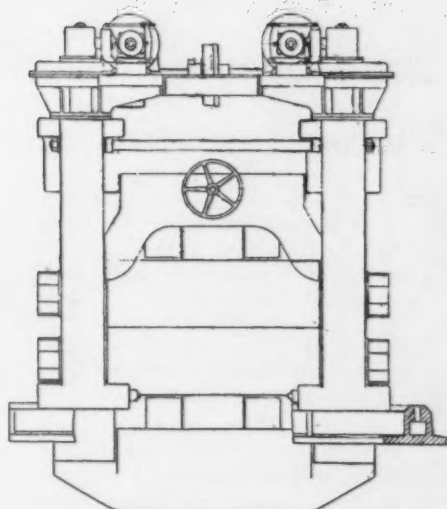
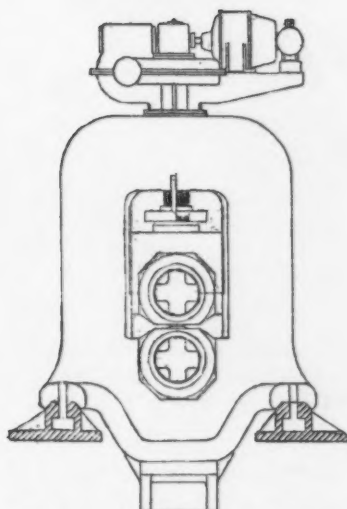
**M**ORE of the equipment in the field fabricating plant of the Babcock & Wilcox Co., at Boulder Dam, is here shown. As stated in *THE IRON AGE* of July 20, 14,500 ft. of welded steel pipe ranging from 8½ to 30 ft. in diameter will be made from plate ranging in thickness from 7/8 to 2¾ in.

Welding of the pipe is shown in the views at right. The automatic welding machine in the upper view is laying an inside or bottom bead in a seam of 8½-ft. diameter pipe. For welding the girth seam the two pipes are mounted on rolls under the welder as shown in the lower illustration. The spider within the pipe section holds the seam in alignment and also serves as a backing member for the welding. Machining the end of an 8½-ft. diameter pipe section is pictured in the view above.





## New Cold Mill Facilitates Planishing of Wide Sheets



The two short contour rolls located at the center may be adjusted quickly to suit the shape of the sheets being rolled.

TO overcome difficulties experienced in planishing full-finished sheets ranging from 48 to 72 in. in width, Lloyd Jones, manager of the Salem, Ohio, works of the E. W. Bliss Co., has designed the cold mill shown in the accompanying line sketch. A feature of this design is that buying of new mills is not essential, as in most cases the present housings, bed-plates and rolls can be altered to permit use of the method here illustrated.

At the center of the two rolls are located short rolls which may be adjusted readily in the vertical direction. Instead of putting crowns on the rolls, as heretofore, or changing the shape of the rolls by use of gas flames, all that is required is to adjust these short contour rolls in proportion to the width of the sheet and the amount of work performed. As this adjustment can be made instantaneously, the problem of shaping the rolls to suit the shape of the sheets being rolled becomes easy and is one

which does not require any great skill.

Another feature is the use of anti-friction oil bearings in place of the usual cold mill brasses, which, it is claimed, does away with the troubles experienced with heated necks.

In addition to the ease with which the shape of the roll can be changed, another advantage said to be gained is that the work is distributed over four bearings for each roll, instead of over two as heretofore. This means, it is stated, that the pressure which can be applied to the sheet is double the amount practicable on present two-high cold mills. Motor-driven screw-down, such as shown in the illustration, is not essential, as mills with the ordinary wrench screw-down can be used to advantage.

timed. The timer is then ready for operation.

It is set in operation by energizing a "clutch-coil" circuit by means of a push button or by the same switch that initiates the process. The operating pointer then moves up the time scale and operates the timer contacts when it reaches the point at which they are set. In some applications the timer is arranged to reset itself automatically after operating the contacts; in other applications the timer is reset by opening the "clutch-coil" circuit manually.

The timing element is a Telechron motor, self-starting and synchronous. The mechanism is guarded against injury by auxiliary contacts which prevent the operating pointer from running "off-scale." The motor of the timer drives a differential gear system, one side of which can be "locked" by an electromagnetic clutch. The other side of the differential mechanism is geared to the operating pointer. When the "clutch coil" is energized, the timing motor drives the operating pointer up the scale.

When this pointer reaches the place on the scale where the adjustable contacts have been set, it closes (or opens) these contacts. The operating pointer keeps these contacts closed (or open) until the "clutch-coil" circuit has been deenergized, when the operating pointer is reset to zero by a spring and is ready to repeat the cycle. The time required for the pointer to reset to zero varies from 1 to 3 sec., depending upon the time scale used.

The timers are rated 1 amp. at 115 volts. Where the load to be handled exceeds the capacity of the contacts it is necessary to use a magnetic switch in conjunction with the timer. They are available for 60, 50 or 25 cycles, 115 or 230 volts, contacts normally opened or closed, and with time intervals of 5/15, 10/30, or 20/60 min.

## New Automatic Timer Has Wide Applications

A NEW electric timer that lends itself to a multitude of automatic and remote-control applications has been announced by the General Electric Co., Schenectady, N. Y. By combining two or more timers, or by using one in conjunction with other types of automatic time switches, a wide range of process schedules may be met.

The timer, designated as type TSA-10, is "all-electric." Timing is started by closing a switch, and resetting is automatic when the control circuit is deenergized. The timing period is readily adjustable over a wide range. Used as a process timer the device can be arranged to operate a signal or terminate a process at the end of a predetermined period.

Two scales, graduated in hours or in minutes, are provided. One scale has a range three times that of the other, which permits a wide range of time-interval selection in a given timer. The user chooses the more ap-

propriate scale for the interval he desires to time, by setting the scale-selector lever. He then sets a movable contact at the point on the time scale corresponding to the interval to be



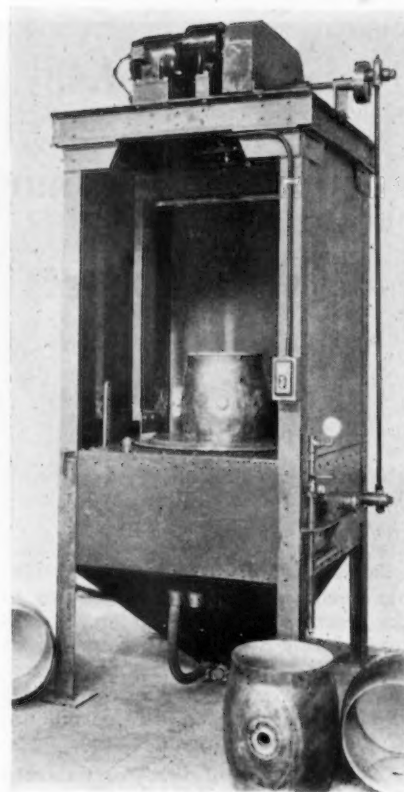
## Steel Beer Barrels Blast Cleaned Preparatory to Finishing

TO meet the demand of manufacturers of steel beer barrels for a cleaning process that will economically prepare their product for the finishing application that protects the barrel and conserves the malt flavor of the beer, the Pangborn Corp., Hagerstown, Md., has developed three special blast cleaning machines.

One of these is an automatic barrel unit arranged to blast the exterior of the barrels preparatory to the application of a rust-resisting or other protective coating. When the cleaning is completed, the barrels are dropped automatically from the machine and new barrels loaded into

place. The capacity of this unit is 50 barrels an hour, but machines can be designed to give a production of 100 barrels an hour if desired.

Another special blast machine is designed for cleaning the inside of barrels preparatory to enameling or other finishing application. The capacity of this equipment is from 30 to 100 barrels an hour. The third machine is also designed for cleaning the interior of barrels, but in this case the steel shells are divided equally into two parts. After being blast cleaned in the automatic blast cabinet, the two pieces are finished and then welded into a complete barrel.



One of three special machines for blast cleaning the interior and exterior of beer barrels preparatory to finishing.

## Knife Grinder Equipped With Time Clock Control

ELECTRIC time clock control and reversible motor and grinding wheel are features of a new automatic knife grinder placed on the market by Samuel C. Rogers & Co., Buffalo, N. Y.

This machine, designated as the type M, is made in four standard sizes, 38, 55, 76 and 90 in., for sharpening paper, veneer, wordworking and scraper knives and light shear blades.

Completely motorized, the machine is self-contained. An electric timing device or clock connected to a magnetic switch controls the grinding operation, including cross feeding and table traverse. This timing device can be set to cut off the power and stop grinding automatically at the end of any period from 1 to 45 min. At the end of each table stroke the rotation of the grinding wheel instantly reverses; grinding the knife away from the cutting edge when running in one direction and toward the cutting edge in the other direction is emphasized as producing sharp knives with smooth bevels and without wire edges. A General Electric ball-bearing 60-cycle motor with oil-immersed revers-

ing and magnetic switches and with start and stop push buttons attached is employed.

The base of the machine incloses the reversing switch, transmission shaft and pulley, gear box, water tank and centrifugal pump. Bed and knife table are of ample weight. The latter is provided with bolts, clamps, etc., for holding the knives in position and fitted with knife gages to facilitate knife set-up. A dial for setting the knife for proper bevel is also provided. Power for the knife table traverse and cross feeding is transmitted from the motor by V-belt and pulleys, worm gears that run in oil, and a steel pinion that meshes with a rack on the bed. Few parts and smooth and positive traverse and reversal are claimed for this design. A hand wheel attachment is provided for manual cross feeding.

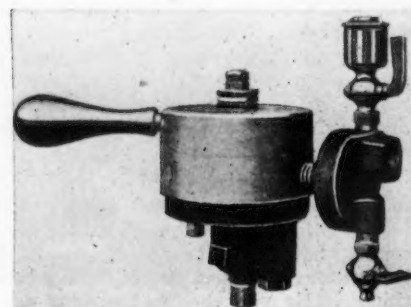


## Valve and Filter for Air-Operated Equipment

THE Minard air valve and oil filter illustrated, now manufactured by the Detroit Tool & Forge Co., Detroit, is for use in connection with any double-acting air cylinder for operating reciprocating equipment and fixtures. The valve is of leak-proof construction, and was developed primarily for returning compressed air from the exhaust side to the live side of the cylinder.

The filter is designed to prevent scale, dirt, etc., in the air line from being carried into any make of air valve or cylinder. It assures lubrica-

tion, and prevents rust by mixing oil with the air in the form of a spray. Both the air cylinder and the valve may be cleaned easily by opening the drain pipe.





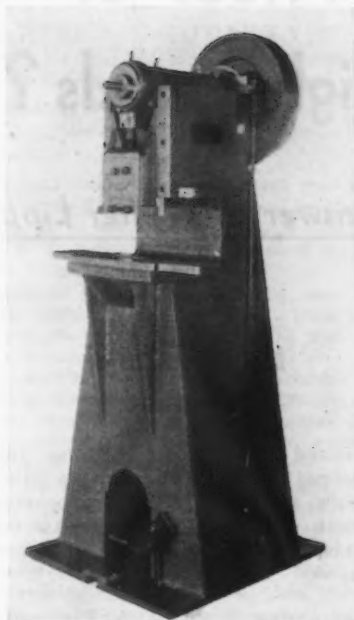
## High Speed Punch Press Has Welded Frame

TO the line of deep-throat punch presses built by the Service Machine Co., Elizabeth, N. J., has been added the 10-ton welded-steel frame unit illustrated. This press, which operates at a maximum speed of 250 r.p.m., is intended particularly for medium punching and stamping operations, while the deep throat design of housing permits handling work of large area.

The slide has a wide and deep bottom face with a hole for 1½-in. diameter shanks. The depth of throat of the standard machine is 8 in. but machines with a throat depth of 10½ in. can be furnished. The slide is 3½ in. from front to back and 7½ in. between gibs. Width of the slide with bolt extensions is 10¼ in. and slide ways are 13½ in. long.

The eccentric cam can be interchanged quickly for various lengths of stroke by removing the nut on the front of the shaft. Any stroke up to 1½ in. can be provided, the standard stroke being 1 in. Adjustment of the slide is 2 in. With a stroke of 1 in. the maximum shut height of the standard press is 7½ in. and of the P-13 press, 12 in.

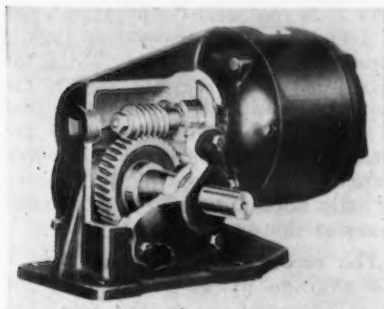
The shaft is a 0.50 per cent carbon manganese steel forging. Bearings are bronze bushed, and oil reservoirs and chain oilers provide constant lubrication. The clutch includes a safety non-repeat cam that can be



disengaged to permit nibbling of the work, and a reaction switch that assures silent operation of the clutch. Brake pressure is adjustable. The flywheel is 22 in. in diameter, 3 in. face; a high-speed 18-in. flywheel can be furnished. The press has a base 26 x 34 in. and a bolster area of 15 x 11 in. The bed area on the P-13A press is 15 x 13 in. The weight of the machine is about 1600 lb.

## Fractional Horsepower Gear-Motors

FRACTIONAL horsepower gear-motors embodying the construction and characteristics of the latest designs of general-purpose motors have been brought out by the General Electric Co., Schenectady, N. Y. The new gear-motors combine light weight, efficient high-speed motor drive with a simple compact reduction gear to give almost any desired speed at the output shaft. Connections to driven machines may be made directly or through the use of



gears, belts, or chains. Access to the gear mechanism is had by removal of the cover plate. Liberal oil capacity and a complete lubrication system assure long life with infrequent attention.

These motors are available in two types, both in ratings from 1/6 to ¼-hp. inclusive; the concentric-shaft type, with speeds from 500 to 98 r.p.m., and the right-angle-shaft type, with speeds from 200 to 11 r.p.m. Planetary type of gearing with concentric shafts, is utilized in the smaller ratios and worm gears, singly or in combination with the planetary type, in the higher ratios. Textolite pinions, helical gears, and worm gears operating in oil keep noise to a low value. The full load horsepower and torque of the motor are developed at the output shaft.

## New Electrode Welds Cromansil Steel

ADDITIONS to the Murex line of heavy mineral coated arc welding electrodes marketed by the Metal & Thermit Corp., 120 Broadway, New

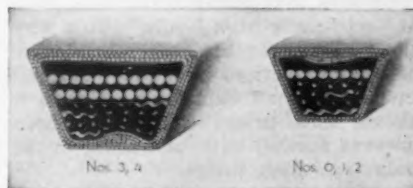
York, include a special material for welding Cromansil steel, which has a tensile strength of 80,000 to 100,000 lb. per sq. in., combined with high ductility. The new electrode gives a deposit of the same analysis as Cromansil, and the weld metal is said to have physical properties equal to the parent metal.

A Murex electrode which deposits a metal containing 4 to 6 per cent chrome and 0.5 per cent molybdenum is also announced. It is particularly suited for welding petroleum refinery equipment.

## Improved V-Belts Used on Worthington Drives

AN improved type of Goodyear Emerald Cord V-belt is being announced by the Worthington Pump & Machinery Corp., Harrison, N. J., in connection with the Worthington multi-V-drive. High power capacity, long flexing life, uniform cross-section and low stretch are said to have been primary considerations in designing the new belt.

A basic feature is greater concentration, about the neutral axis of the belt, of the load-carrying capacity. The illustration shows the two variations of the new construction. Sizes Nos. 0, 1 and 2 have one endless cord in one plane, and sizes Nos. 3 and 4 have two endless cords in one plane.



All cords are completely embedded in rubber.

The tension and compression sections of the belt are of rubber, with layers of fabric distributed through the compression section to prevent excessive flexibility. The belt is molded to shape, and is entirely inclosed in a fabric envelope which protects the working elements and provides a good contact surface for the V-grooved sheave. The fabric for the envelope is so cut that the threads run on the "bias," which, it is stated, prevents the envelope from taking any part of the load and thus protects it from rupture. The envelope is "flipped" on the belt and is placed so that the edges overlap on the top or bottom, rather than on the sides of the belt.

Greatly improved belt flexing capacity, with increase in length of life, is claimed. Closer control of pre-stretching during construction is said to result in closer standardization of the stretch characteristic in individual belts, assuring accurate matching of the belts in each drive and therefore uniform distribution of the load.

# Are Steel Prices at "Artificially High Levels?"

## An Answer to Walter Lippmann

By G. L. LACHER

THE steel industry suffered the stupendous loss of \$161,000,000 in 1932, according to a study of earnings recently cited by Col. Robert P. Lamont. The industry is groggy and weak from its long-drawn out struggle with the depression—a fact that is only too keenly appreciated by its many stockholders; yet national figures who have the public ear are calling upon the industry to act as if it were gorged with profits.

William Green demands a minimum wage of 60 cents an hour for common labor. Walter Lippmann warns against the perpetuation of "high" steel prices. Mr. Lippmann finds that production and employment fell more than prices in the steel industry and concludes that prices have been held at "artificially high levels." Just why there should be an exact correlation between reductions in employment and in prices is not explained. Nor is it shown how prices could have been lowered further without adding to the industry's huge losses.

### Cannot Do the Impossible

Those charged with the responsibility of operating iron and steel companies are just as sincere in their desire to raise wages and to quote reasonable prices as Messrs. Green and Lippmann, but they are faced with a practical problem. They cannot do the impossible.

Mr. Lippmann, whose gift for writing has deservedly won wide admiration and whose willingness to change his opinions on occasion has demonstrated his intent to be fair, cannot hope to keep in intimate touch with all of the economic and political problems that make up the broad field that he surveys. It is not surprising, therefore, that he should have fallen into the error of swallowing the propaganda that certain professional economic services have been spreading regarding steel prices. The prices of primary materials and particularly agricultural products, the output of which is least subject to control, always fluctuate more widely than prices of finished manufactures. Yet economic "experts" have consistently

criticized steel prices because they have not declined as much as prices of raw materials. The proper comparison should be, not with raw materials, but with other finished products.

### Comparing Steel With Finished Product Index

And such a comparison shows that steel has done its full share of deflating. Steel prices reached their high of modern times in 1917. While they made a secondary advance in 1920, they did not regain war-time levels. Not so with finished products generally. They rose to levels in 1920 that surpassed the war-time peaks. If, therefore, we compare the lows for the present depression with these peaks (1917 for steel and 1920 for finished products) we find that the decline for steel was 55.4 per cent and that for finished products generally 56.1 per cent. THE IRON AGE composite for finished steel and the Department of Labor index for finished products were used for the comparisons.

### Profits From Volume Rather Than Price

Steel prices, according to THE IRON AGE composite, showed a minor recovery from the 1921 depression, reaching 2.775c. a lb. in 1923 as compared with 4.188c. a lb. in 1917. But following 1923 there has been an uninterrupted decline except for 1929, when a gain of 0.043c. a lb., or 86c. a ton over the previous year was recorded.

This performance is in contrast with the Department of Labor index for finished products which showed gains in 1925 and in 1928.

The steel industry is well aware that it is a "volume" industry and it is much less interested in price than in profit. A study published in THE IRON AGE of March 16, 1933, page 428, demonstrates conclusively that whereas steel profits rose and fell

with prices before the war, there was no such correlation in the 20's. On the contrary, in the latter period profits rose with volume. The United States Steel Corp. recognized this change in its annual report for the year 1928, saying that although average selling prices were \$1.38 a ton less on domestic and \$2.48 a ton less on export shipments than in 1927, this recession was more than offset by greater volume and increased efficiency. It added this pertinent comment:

"The reasonable prices charged for iron and steel products have undoubtedly stimulated consumption to a material extent, thereby enabling plants to maintain satisfactory operations. In this the public is well served."

### What Steel Corporation Record of Prices Shows

The Steel Corporation's record of average selling prices for the present depression and for the preceding period of prosperity conforms in general with the trend shown by THE IRON AGE composite for finished steel, although reflecting minor differences. For example, average prices of rolled and other finished products shipped in 1924 netted \$3.17 a ton more on domestic business than in 1923. This means nothing more than that much of the tonnage sold in 1923 was not shipped until 1924. THE IRON AGE composite for finished steel, of course, reflects price changes as soon as they become effective. Hence the post-1921 depression peak for the composite was reached in 1923 while that for Steel Corporation shipments occurred in the following year.

In 1929 the Steel Corporation's gain in average selling prices over 1928 on domestic business was only 23c. a ton, as against an increase of 86c. in THE IRON AGE composite. This divergence is apparently explained by the fact that business fell off after prices were increased and the higher figures actually applied on a relatively small share of the year's tonnage.

The record of losses and gains in the average prices received by the Steel Corporation on the total ton-



nage of rolled and other finished steel shipped is as follows:

Year	Decline on Domestic Shipments	
1932.....	\$2.28 a ton from	1931
1931.....	4.60 a ton from	1930
1930.....	3.61 a ton from	1929
1929.....	*0.23 a ton above	1928
1928.....	1.38 a ton from	1927
1927.....	2.38 a ton from	1926
1926.....	1.12 a ton from	1925
1925.....	3.80 a ton from	1924
1924.....	*3.17 a ton above	1923

\*Gain in average selling prices.

#### Savings From Technical Improvements Passed on to Consumer

Certainly there is nothing in this record to indicate that steel prices are "artificially" controlled. And if reference is made to individual commodities the flexibility of steel prices is demonstrated even more emphatically. Automobile body sheets, which sold for as high as 6.85c. a lb. in 1920, dropped to 2.30c. (in some cases even lower) this year, a decline from the 1920 peak of 66.4 per cent. Hot-rolled strips, which reached 5.50c. a lb. in 1920, dropped to a low of 1.40c. during the current depression, a decline of 74.5 per cent. These sharp reductions are understandable in the steel trade, where it is common knowledge that the most revolutionary advances in rolling mill practice have been in the production of flat-rolled steel products. In other words, the sharpest price reductions have occurred where the greatest technical improvements have been made. Savings from better methods have been passed back to the consumer.

This is as it should be, and as it will continue to be, code or no code. A volume industry wants prices that have some relation to costs, but it is not foolish enough to insist on "artificially high" prices that will stifle trade and cut profits.

## National Steel Shows Good 2nd Quarter

**B**EST second quarter earnings in two years, equivalent to 71c. a share, are reported by National Steel Corp., largest independent tinplate producer and sixth steel company. For the three months to June 30 last the company's net earnings were officially reported as \$1,532,466 after all charges and estimated Federal tax, equivalent to 71c. a share on 2,156,832 no par capital shares outstanding. Similar earnings in the corresponding 1932 quarter were \$560,999 or 26c. a share on the same capitalization.

For the six months to June 30 last, net earnings were reported as \$1,813,311 after all charges and estimated Federal tax, equivalent to 84c. a share on the same capitalization. This compares with similar earnings in the corresponding 1932 period of \$1,153,799 or 53c. a share on the same capitalization.

## A. S. S. T. Announces Tentative Program for October Convention

**A**MERICAN SOCIETY FOR STEEL TREATING announces the following as a tentative program for its Detroit convention, to be held during the week beginning Oct. 2:

**Thermal Conductivity of Iron and Steel and Some Other Metals in the Temperature Range 0 deg. C. to 600 deg. C.,** by S. M. Shelton and W. H. Swanger, U. S. Bureau of Standards, Washington, D. C.

**Alloys of Iron and Manganese—4 parts,** by F. M. Walters, John Eckel, Cyril Wells and M. Gensamer, Carnegie Institute of Technology, Pittsburgh, Pa.

**Composition and Critical Temperature of Pearlite Containing One Per Cent Silicon,** by A. E. Showalter, W. W. Delammatter and H. H. Schwartz, National Malleable & Steel Castings Co., Cleveland.

**On the Design and Construction of a Precision High Power Metallographic Apparatus,** by F. F. Lucas, Bell Telephone Laboratories, New York.

**Sensitivity of the Gamma Ray Method of Radiography,** by J. T. Norton and Alfred Ziegler, Massachusetts Institute of Technology, Cambridge, Mass.

**Mechanism of Crystal Growth and Its Consequences,** by Wheeler P. Davey, Pennsylvania State College, State College, Pa.

**Study of the Effect of Water Vapor on the Surface Decarburization of Steel by Hydrogen with Certain Developments in Gas Purification,** by C. R. Austin, Westinghouse Electric and Mfg. Co., East Pittsburgh.

**The Action of Oxygen and Hydrogen Sulphide Upon Iron Chromium Alloys at High Temperature,** by R. L. Rickett and W. P. Wood, University of Michigan, Ann Arbor, Mich.

**Study of Banding in Medium Carbon Chrome Molybdenum Steel,** by E. R. Johnson and Mr. Buechling, Republic Steel Corp., Massillon, Ohio.

**Heat Treatment of Cast Iron,** by C. H. Morcken, Detroit Electric Furnace Co., Detroit.

**Bright Annealing of Steel in Mixed Gas Atmospheres,** by A. L. Marshall, General Electric Co., Schenectady, N. Y.

**Structure and Constitution of an Alloy Steel,** by O. W. Ellis, Ontario Research Foundation, Toronto, Ont., Canada.

**Investigation of the Treatment of Steel for Permanent Magnets,** by R. L. Dowdell, University of Minnesota, Minneapolis, Minn.

**1933 Campbell Memorial Lecture,** presented by H. J. French, International Nickel Co., New York City.

**Some Problems of Quenching Steel Cylinders,** by Howard Scott, Westinghouse Electric & Mfg. Co., East Pittsburgh.

**Martensitic Grains in Air Cooled Low Carbon Steel and Their Effect on Machinability,** by O. W. McMullan, Timken Detroit Axle Co., Detroit.

**Life of Turning Tools as Influenced by Shape,** by O. W. Boston and W. W. Gilbert, University of Michigan, Ann Arbor, Mich.

**An Inquiry into Deformation of Steel by Tensile Stress and the Interrelation of Deformation to Other Physical Properties,** by E. J. Janitzky, Illinois Steel Co., Chicago.

**Low Temperature Impact Strength of Some Normalized Low Alloy Steels,** by J. J. Egan, Walter Crofts and A. B. Kinzel, Union Carbide Laboratories, Long Island City, New York.

**Comparison of Single Step Long Time Creep Results with Hatfield's Time Yield Stress,** by

A. E. White and C. L. Clark, University of Michigan, Ann Arbor, Mich.

**Application of Thermodynamics to the Deoxidation of Liquid Steel,** by John Chipman, University of Michigan, Ann Arbor, Mich.

**Solidification of Steel in Ingot Molds,** by L. H. Nelson, Davenport, Iowa.

**Rimming Steel,** by W. R. Fleming, Andrews Steel Co., Newport, Ky.

**Present Status of Age-Hardening,** by R. H. Harrington, General Electric Co., Schenectady, N. Y.

**Some Notes on the Aging of Metals and Alloys,** by Albert Sauveur, Harvard University, Cambridge, Mass.

**On Grain Size and Grain Growth,** by M. A. Grossmann, Illinois Steel Co., Chicago.

**Cold Heading,** by Carl Harvey, Lamson & Sessions Co., Kent, Ohio.

**Basic Open Hearth Carbon Steel for Cold Heading "Ingot to Wire,"** by A. B. Arganbright, Wheeling Steel Corp., Portsmouth, Ohio.

**Some Factors Affecting the Physical Properties and Corrosion Resistance of 18:8 Chrome Nickel Steel Wire,** by W. H. Wills and J. K. Findley, Ludlum Steel Co., Dunkirk, N. Y.

## Millionth Fair Visitor Gets All-Steel Watch

**A**N all-steel watch, said to be one of the first of its kind, was presented to Miss Louise Sholl, 20-year-old girl cashier from Durant, Okla., for being the millionth visitor to inspect the exhibit of the United States Steel Corp. at a Century of Progress, Chicago. Presentation of the gift was made by D. A. Merriman, chairman of the exposition committee. Both the works and case of the watch are made of stainless alloy steel. Many other articles ranging from kitchen utensils to industrial equipment, manufactured from this new metal, are shown at the corporation's exhibit, which features both the manufacture and uses of steel. The exhibit is located in the first unit of the General Exhibits building.

## Columbia River Dam Authorized

**C**ONSTRUCTION of the Grand Coulee Dam as the initial project of the \$125,750,000 Columbia River Basin Project has been authorized by the Federal Public Works Administration at Washington, D. C. The \$60,000,000 appropriation to build the first unit of the dam and the power plant has been approved and work will proceed shortly.

The proposed dam will be 450 ft. in height, 4140 ft. in length and require 11,266,000 cu. yards of concrete. The reservoir will extend 150 miles northward through Washington to the Canadian line.

# What Industry Thinks of Industrial Control

*"Industry Must Do Its Own Policing," Says T. J. Foster. "The Slow-Moving Methods of the Government Will Not Suffice"*



T. J. FOSTER

IN the maelstrom of rapidly occurring events resulting from the passage of the National Recovery Act, capital is arranging to get its full share in the hoped-for prosperity; labor is presenting the best arguments for its side, and all interests are seeking protection of what they consider their rights. From the viewpoint of the Government, code making is for the prosperity of the nation. Each industry views code making as an opportunity to further its individual interests. This should provide a common denominator for our problem if all the factors are taken into consideration. The desires of all interests are boldly presented. We hear much about minimum wages and maximum hours, but little expression is given to the means of adequate enforcement of such regulations as are being made.

## Unfair Practices Made Recovery Act Inevitable

Today's troubles are the inevitable result of the unfair practices that have been indulged in. Recognition of the danger of such practices is not new. In the midst of the panic of 1907 Judge Gary pointed out to about one hundred leaders of industry that there was danger of wrecking the industrial mechanism if cut-throat competition continued. In 1910 the American Iron and Steel Institute invited representatives from England, France, Belgium and Germany to visit us and a week was devoted to preaching the gospel of cooperation as opposed to the evil of competition.

In the midst of our great prosperity subsequent to 1923 the textile industry was in a very precarious condition. In 1927 a series of articles called attention to the "profitless prosperity" of the great steel warehouse industry which, in 1926, handled 3,279,000 gross tons of steel. When Mr. Hoover was Secretary of Commerce, in the midst of our "great prosperity," he wrote, "First, there must be

By THOMAS J. FOSTER

Chairman, National Bridge Works,  
Long Island City, N. Y.

organization in such form as can establish the standards of conduct in this vast complex of shifting invention, production and use. Second, there must be some sort of enforcement. There is perpetual difficulty of a small minority who will not play the game." President Roosevelt last May said the same thing in succinct language before the Chamber of Commerce of the United States.

Unfair practices are as old as industry. The effort to deal with them by voluntary cooperation is not new. Unfortunately no method of voluntary control has been successful, although millions of dollars and much time have been spent in the effort. In the present emergency our Government

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**N**ATIONAL industrial control is a natural outcome of uneconomic and unfair practices—practices which cannot be tolerated in a highly organized society, according to the view of Mr. Foster. The control act represents an effort to bring order out of disorder—to establish new rules to fit the changed aspects of the game of business. Just as traffic rules became essential with the advent of the motor car, so enforceable trade rules are necessary to permit the orderly flow of modern business. The essence of the enforcement of those rules, however, is speed, declares Mr. Foster. Violations cannot be adequately dealt with by a slow-moving Governmental bureaucracy.

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has come forward with a plan that will succeed if industry and labor do their part. The Government recognizes that all workers are entitled to earn a living and to receive an adequate wage, that unfair practices are a menace to industry, and that industry should establish enforceable rules of self-government. Here is the most wonderful opportunity ever offered the citizens of this country, but success cannot come unless selfish interests are overruled.

## Code Enforcement Should Not Be Delegated to the Government

It is assumed that the N. R. A. will start successfully, but how is each industry planning to check price cutting, wage cutting, bribery, secret rebates, false invoicing, dumping, misbranding, the use of the incompetent as a tool for unfair practices, etc.? It will require more than our assertion of intent.

Voluntary cooperation has proved a failure because there is always a certain number who will not play fair and who care nothing for the rights of their fellows. The Government cannot adequately enforce the rules, because violations must be dealt with at once; even a week's delay might be critical and the slow-moving methods of Government will not suffice. Those who are to judge breaches of the rules must be familiar with the details of the industry as no bureaucracy can possibly be. If industry passes this power over to the Government and washes its hands of control, it will mean that every unit of industry will be striving against the Government and every one wanting to commit an unfair practice will feel relieved of any responsibility to his fellow man; it will only be a question as to whether or not he can beat the Government. When a man knows that he will be judged by the members of his own group while the details of his misdemeanors are still fresh in their minds, he will realize that he cannot get away with unethical practices. His



protection will be an appeal to the court if he is not satisfied with the treatment he receives.

#### Must Prevent Industrial "Traffic Jams"

The flow of commodities, or industrial traffic, is comparable to the condition of vehicular traffic when the motor car first appeared on the streets. About 30 years ago a certain truckman was arrested for deliberately obstructing the street and was discharged by the magistrate because it was held to be a citizen's right to drive anywhere at any time, and to prevent obstruction of traffic was not within the jurisdiction of the police. But a change was necessary if we were to benefit by the possibilities for pleasure and financial betterment offered by the high-powered vehicular unit. First came a crude form of regulation, then traffic lights, the rounding of corners, through streets, grade crossing elimination, detouring of through traffic around towns, etc. We would be hard put to it today to find a champion for the truckman who insisted on his "right" to obstruct traffic.

Today our problem is to clear the way for the high-powered industrial units so that the 50 per cent of the people in this country who are not living under decent conditions\* (and the word "decent" does not include a bath tub, electricity, telephone or radio) may find it possible to share in the material progress of their fellow citizens. This would mean such a golden age for industry as has never been dreamed of. But until today industry has been helpless to prevent industrial traffic jams. Now the Government is belatedly saying: "You may, subject to my approval, make rules for regulating industrial traffic, and provide for the enforcement thereof." These regulations will never be completed any more than the lanes of vehicular traffic will ever be completed. Experience will continually provide us with ideas for improvement. We will make some progress in two years, but ten years from now it will seem insignificant in perspective.

#### A Transition to New Conceptions

Many of the old inadequate traffic lines of industry will never be used again. The blanket code is a detour and must of necessity have rough going amid unfamiliar surroundings. During this transition period every man should be aroused to the need of planning for the general good, should convey his ideas to his code committee, should inspire it to work for unobstructed traffic lanes, and demand that the code provide traffic regulations that can be quickly administered and that will be adequate to prevent violations.

\*Housing America.

As soon as industry gets settled in new grooves, all kinds of unfair competition will again become rampant unless those who would be the sufferers have the power of prevention.

Success or failure will depend upon our ability to enforce the rules. In this emergency the Government has shown its willingness to allow industry to do a good job, and it must

therefore prevent selfish interests from destroying this opportunity. Industry must go into this determined to open the lanes of industrial traffic and guard jealously the rights of the public by rigid enforcement of the traffic rules, knowing well that the right of each individual is made secure only by circumscribing the rights of all.

## Dean Kimball Sees Need for "Engineering Economists"

ADDRESSING himself to the topic "The Engineering Economist of the Future," Dr. Dexter S. Kimball, dean of the College of Engineering at Cornell University, Ithaca, N. Y., at a meeting in Chicago, June 30, of the Econometric Society, developed the thesis that the engineer can be of help in solving the problems of today's complex society.

Old economic theories based on a handicraft age do not apply, he said, to our modern machine era and the industrial engineer can do much to show their fallacious character. But on the whole, he emphasized, the engineer who aspires to solve modern economic problems must expect to do an unusual amount of studying before he can replace these old theories with others that are suited to our day and methods.

It does not seem possible, he observed early in his address, that after so many years of study of economics on the part of so many able men and with the vast literature on this subject now available there should be such violent disagreement among economists on such matters as inflation, the gold standard, etc. "the discussion of which now fills the land with raucous debate."

#### When Engineers Entered the Field of Economics

He pointed out that about the time modern manufacturing methods came into being, following the development of the semi-automatic machine and the full automatic machine, the new economic relations introduced by these methods attracted the attention of engineers. As engineers began to assume prominence as industrial managers they turned their scientific training to the consideration of the economic problems occasioned by the new methods.

In 1886, he went on to say, Henry R. Towne presented a paper before the American Society of Mechanical Engineers, entitled "The Engineer as an Economist." Then came F. A. Halsey's monumental paper in 1891 on premium wage systems. Near the end of the last century appeared the re-

markable work of F. W. Taylor and his associates Gantt, Gilbreth, Barth and others, "which ushered in a new era not only in factory work, but in management in general, whether in farm, factory, shop or government. Whereas, forty years ago industrial production was almost entirely empirical, today the economic principles of production and their limitations are quite fully determined, though it must be admitted that this knowledge is not as widely disseminated or used as it should be.

"But the outstanding fact remains," continued Dean Kimball, "that the engineer of today has quite complete mastery over the economics of production and can predict with some certainty, not only the scientific characteristics of his product, but also its economic performance. And it should be specially noted that in so doing he has developed a knowledge and a control of the human element in industry that would have appeared to be impossible fifty years ago. For the most part this extended knowledge of modern industry is the exclusive property of the engineering profession."

#### Place for the Engineer Grounded in Finance

The superiority of the engineer as an administrator, other things being equal, lies, in the opinion of Dean Kimball, in his scientific training and his intimate knowledge of industrial operations. "When to these is added a knowledge of accounting and finance the combination is the very best that can be had for work in industrial administration of any kind." If the industrial, commercial and financial world had remained as simple as it was, say, in 1885, hopes of solving the problem of existence might have been easily fulfilled, but, in the view of Dr. Kimball the new methods have interposed between producer and consumer a system of distribution more complex than any heretofore known.

The engineer, he urged, should avoid dogmatic statements. In his own chosen field he may be quite dog-

(Concluded on Page 66)



## THE NEWS OF THIS WEEK

### Railroad Undermaintenance Close to Half Billion Dollars

**W**ASHINGTON, Aug. 8. — Maintenance work would be prevented, according to a majority of the Interstate Commerce Commission, if general reductions in railroad rates were made. This was given as one of many reasons for denial in a decision last Saturday of the petition of coal, lumber and agricultural interests for a leveling of all freight rates. Iron ore, steel scrap, tin plate scrap, and fluorspar interests sought reductions. Alabama blast furnaces urged a percentage reduction if a general reduction were made. The iron and steel industry did not appear at hearings to ask rate reductions.

The three members of the division of the Commission which conducted the hearings dissented from the majority opinion. Through the dissent, written by Commissioner Aitchison, they suggested that rates should be reduced by at least 10 per cent below the maxima found to be reasonable in 1922.

The majority said that the freight rate level is not depressing the volume of traffic of the business as a whole and that general rate reductions would not stimulate the aggregate volume of traffic by railroad, except so far as they would tend to recover traffic from competing forms of transportation. Other points made were that preservation of an adequate railroad transportation machine is more important to the country than lowered freight rates. The proceedings were discontinued "without prejudice" to filing complaints to individual rate reductions. It was pointed out that surcharges will expire Sept. 30.

The exhaustive report brought out in detail the deferred maintenance situation of the railroad. It is clear that the Government is trying with apparent success to get the railroads to engage upon a large buying pro-

gram of rolling stock, locomotives, rails, and to engage many men at work in grade crossing elimination. Transportation Coordinator Eastman has suggested the latter plan to the Public Works Administration from which it is said the railroad likely will ask for loans soon.

In its report, the Commission said that estimates indicate that in the country as a whole at the present time there is an accumulated undermaintenance of something in excess of \$300,000,000 on the basis of 1932 traffic and something over \$600,000,000 if the traffic of the years 1927-1931 be taken as normal.

### Wholesale Prices Show Slight Decline

**T**HE Bureau of Labor Statistics of the U. S. Department of Labor announces that its index number of wholesale prices for the last week reported, that ended July 29, stands at 69.2 as compared with 69.7 for the week ended July 22 showing a decrease of approximately  $\frac{3}{4}$  of 1 per cent. This decrease is due in the main to the decline in farm products, the index dropping from 62.7 to 59.6

or approximately 5 per cent. These index numbers are derived from price quotations of 784 commodities, weighted according to the importance of each commodity and based on average prices for the year 1926 as 100.0.

The accompanying table shows the index numbers of groups of commodities for the weeks ended July 1, 8, 15, 22 and 29, 1933.

### Mayville Iron Co. Sold to Iron & Steel Products

**I**RON & Steel Products, Inc., Railway Exchange, Chicago, bid in the property of the Mayville Iron Co., Mayville, Wis., at the public auction held at the plant Aug. 3 by the Williams Sale & Auction Co., Peoria, Ill. The sale attracted about 300 bidders, including two from South America. The amount of the successful bid was not disclosed.

The property sold included two 400-ton blast furnaces, nine hot blast stoves, three locomotives, numerous ore cars, storage bins, trestles, 15,000 tons of scrap iron and steel, 50 tons of scrap copper, 700 tons of rails, 400 tons of pipe, fittings and valves, and 200 carloads of refractory brick. Replacement value of the plant is estimated at \$2,000,000, it being stated that four years ago an offer of \$2,500,000 was refused.

The plant was established in 1870 by the Schlesinger interests of Mil-

INDEX NUMBERS OF WHOLESALE PRICES FOR WEEKS OF JULY 1, 8, 15, 22 AND 29, 1933  
(1926=100.0)

	Week Ended				
	July 1	July 8	July 15	July 22	July 29
All commodities.....	66.3	67.2	68.9	69.7	69.2
Farm products.....	56.9	58.5	61.1	62.7	59.6
Foods .....	62.6	62.9	65.9	66.5	66.1
Hides and leather products.....	83.3	82.7	85.4	87.8	88.3
Textile products.....	62.2	64.1	66.5	68.3	68.4
Fuel and lighting.....	64.3	65.7	66.7	66.8	67.0
Metals and metal products.....	79.2	79.9	80.6	80.7	80.8
Building materials.....	75.9	77.0	78.8	79.1	80.1
Chemicals and drugs.....	73.5	73.0	72.9	73.2	73.4
Housefurnishing goods.....	73.2	73.6	74.0	74.3	74.6
Miscellaneous .....	62.1	62.9	63.5	64.6	65.1



waukee and was of the charcoal type, with a daily capacity of 900 to 1000 tons of pig iron. It was operated nearly continuously until five years ago. Closing of the plant was forced by its inability to compete with open pit mining operations on the Lake Superior ranges. Despite the lengthy operation, the iron ore deposits at Mayville are sufficient, it is estimated, to supply the plant for 100 years longer. However, it is believed that the purchaser intends to dismantle the property. The site as well as the ore deposits was not included in the sale, having been occupied under lease.

## Zinc Industry's Code Makes Progress

AS modified by the President's Re-employment Agreement the code for the zinc industry fixes the following minimum rates of pay in the mining division: 35c. per hour in the Eastern and Northwestern districts and 30c. per hour in the Southern, Mississippi Valley and Southwestern districts. In the prime Western smelting division the minimum is established at 30c. an hour for unskilled labor and at the rate of \$2.75 per shift of not more than 8-hr. for all other labor. In the high grade zinc division the minimum rate is fixed at 39c. an hour. In the secondary zinc division the minimum per hour is set at 35c., except for cleaners and outside labor, fixed at 30c. Minimum rates in the rolled zinc division are the same as in the secondary zinc division.

## Moderate Gain in Cincinnati Bookings

BOOKINGS of district machine tool manufacturers have improved slightly during the past two weeks, but the demand is still too small to venture prediction of a market trend. Inquiries also have increased in volume and sincerity, although users are still slow to close after receiving quotations. Current business, however, is urgent, buyers asking for almost immediate shipment on orders. Operations have increased moderately, the average being about 20 per cent of normal. This, however, does not reflect actual business placed, since many factories are busy on maintenance work, while others are replenishing inventories.

## Knitting Machine Code Hearing Thursday

A HEARING will be held on Thursday of the present week on the basic code submitted by the Knitting Machine Manufacturers' Association. The code provides an 8-hr. day, 40-hr. maximum week. The minimum wage is 35c. per hour.

# American Steel Warehouse Association Submits Proposed Code to Members

THE code committee of the American Steel Warehouse Association has submitted its draft of a proposed code of fair practice to its members.

The committee consists of Guy P. Bible, chairman; G. Maurice Congdon, Edward L. Ryerson (acting for E. D. Graff), Edward L. Parker and Lester Brion.

The proposed code conforms in some respects to that submitted by the American Iron and Steel Institute and embraces all of the essential features of the President's "blanket" code.

Maximum hours of work are set at 40 per week, taking an average 3-month period, except for outside salesmen, executives or those in supervisory capacities receiving more than \$35 per week. Employees on repair work and learners are also excepted.

Minimum wages are set at \$15 per week for salaried employees and 37½ cents per hour for others in cities of over 500,000 population. In cities of between 250,000 and 500,000, the salary minimum is \$14.50 and the hourly is 36¼ cents. In cities of less than 250,000 population, salary minimum is \$14 per week and hourly rate is 35 cents. Immediate trading areas adjacent to cities are included in these classifications.

The term "distributor" is defined as follows:

Sec. 1.—The term "distributor"

shall mean one who performs service operations as a steel warehouse distributor, steel jobber or steel merchant and spoken of hereafter as "distributor"; and when used in this code shall include any person, partnership, or corporation engaged in the business of distributing rolled, drawn, cold finished and/or hammered steel products which include the following commodities: structural shapes, plates, bars, sheets, hoops, bands, wire, mechanical and boiler tubes, bolts, nuts, rivets and kindred products; and carrying in warehouse stocks to serve the needs of the territory in which the warehouse is located.

Voting power for the approval of the code is arranged according to the individual company's gross sales, ranging from 1 vote for \$100,000 or less to 20 votes for \$5,000,000 or more. A two-thirds vote of at least 75 per cent of the subscribing members is necessary to approve the code or to amend it.

In order to effectuate the increase of employment, no distributor shall reduce the hours of any warehouse or service operation below 52 per week, unless the hours were less than this prior to July 1, 1933. Employment of minors under 16 is prohibited.

Administration of the code is to be by direction of the executive committee of the association. A national committee of three is to be appointed to keep contact with the recovery administration.

Independent price schedules are to be published and each distributor is to file his price schedules with the secretary of his local chapter or chapters with which he operates.

A schedule of unfair practices is appended to the code and comprises misbranding, rebates, false invoicing, deviation from published terms of sale, improper disposition of obsolete material, defamation of character, commercial bribery, and misrepresentation.

## Link-Belt Co. Shows Profit

LINK-BELT CO. and subsidiaries for quarter ended June 30, report net profit of \$2,927 after depreciation, taxes and all other charges compared with a net loss of \$205,672 in the preceding quarter and a net loss of \$118,445 in the second quarter of 1932.



# Cast Iron Soil Pipe Code Asks 27-Hour Week

**T**HE cast iron soil pipe code was determined in one day's hearings. Though employers and employees were far apart when the hearing opened last Wednesday, Deputy Administrator H. O. King announced late in the afternoon that after an hour's conference employers and workers composed their differences. It was stated they would join in submitting a revised code providing for a 27-hr. week and a minimum wage of 32c. an hour in the South and 40c. an hour in the North. The employer code had proposed a 30-hr. week with minimum wages of 25c. an hour for casual labor and 30c. an hour for process labor in the Southern and Pacific section and 35c. for casual labor and 40c. for process labor in the North. The workers, speaking through Charles Wilkerson, of the metal trades department of the American Federation of Labor, asked for a 24-hr. week, consisting of four 6-hr. work days, elimination of overtime, except for maintenance and repairs and then only in emergencies, and a guaranteed minimum wage of \$25 per week.

The Emory Type & Foundry Co.,

Anniston, Ala., protested all sections of the proposed code which would bring it into association with the Cast Iron Pipe Association of which it is not a member, and which, it was stated, it refuses to join.

## 669 Airplanes Made in First Half of 1933

**A**IRPLANES manufactured in the United States during the first six months of 1933 totaled 669, of which 306 were for domestic civil use, it has been announced by Ewing Y. Mitchell, Assistant Secretary of Commerce. The 306 airplanes built for civil use in this country during the period January 1 to June 30 included 215 monoplanes, 84 biplanes, and 7 autogiros. Of the monoplanes, 120 were open cockpit and 95 were cabin types. The biplanes included 26 open cockpit and 58 cabin craft.

Of the airplanes produced from January 1 to June 30, 1933, the total of 669 was divided as follows: 306 for domestic civil use, 212 for military de-

livery, and 151, including civil and military, for delivery to purchasers in foreign countries.

In 1932, during the first six months, manufacturers of airplanes produced 722 aircraft. These included 351 for domestic civil use, 325 for military delivery, and 46 for export. Among the 351 airplanes manufactured for domestic civil use in the period January-June, 1932, were 264 monoplanes, 71 biplanes and 16 autogiros.

The report is based on a record of Department of Commerce licenses, identification marks issued for unlicensed airplanes, and reports as to military and export production for aircraft manufactured between January 1 and June 30. There is a possibility, however, that there still may be a few aircraft manufactured within that period for which licenses or identification marks have not yet been sought.

## Tool Steel Extras To Be Revised

**R**EVISIONS covering tool steel and high-speed steel extras are being considered by the principal manufacturers of these products in connection with the iron and steel code. While details of the revisions have been discussed at recent meetings of the makers, further conferences will probably be necessary for correction of several items on the proposed card of extras before the draft is finally accepted for general application. Two specific changes, however, are already certain. These cover a revision in the base sizes from the old base of  $\frac{5}{8}$  to 2 in. to the new base of  $1\frac{1}{2}$  to  $2\frac{3}{4}$  in. inclusive; and in the old base for quantity extras of 300 lb. and more, applying to individual items of a size ordered at one time for single delivery, to the new base of 1000 lb.

## To Auction Equipment of Federal Rubber Co.

**M**ACHINERY, machine tools and other equipment valued at \$100,000 and numbering 3600 separate lots, will be offered for sale at public auction at the plant of the Federal Rubber Co., western division, Fisk Rubber Co., Chicopee Falls, Mass., in Cudahy, suburb of Milwaukee, on Aug. 15, 16 and 17. The entire plant, including real estate, buildings and equipment, will first be offered as a whole, and if no satisfactory bid is received, will be offered in parcels. The auctioneers are Samuel T. Freedman & Co., New York. The real estate consists of 50 acres; buildings contain 840,000 sq. ft. The plant was built in 1916 and extensive additions were made in 1920 and 1924. The assessed valuation is \$1,500,000 on a basis of 90 per cent of true value.

## Last Minute Sales Leads

(Received too late for classification in our Plant Expansion Section)

**Duplate Corp.**, Creighton, Pa., manufacturer of safety glass, an interest of Pittsburgh Plate Glass Co., Grant Building, Pittsburgh, has approved plans for addition, about 25,000 sq. ft. floor space, scheduled for completion in November. Cost about \$300,000 with equipment.

**Chicago Indian Warehouse**, 1749 West Pershing Road, Chicago, asks bids until Aug. 17 for 80 fire pumps and accessories for Luray and Front Royal, Va., Dryson City, N. C., Bar Harbor, Me., Sevierville, Tenn., and other points.

**Mobile Brewing Co.**, Water Street, Mobile, Ala., Herbert Lyons, president, plans extensions and improvements, to include machinery for brew-house, bottling, mechanical-cooling and other departments. Cost over \$175,000 with equipment.

**City Council**, Menominee, Mich., is planning new municipal electric light and power plant. Cost about \$650,000 with equipment. Special election will be called Aug. 29 to approve project.

**County Controller**, County Office Building, Pittsburgh, asks bids until Aug. 15 for electro-galvanized welded lawn fence.

**Record Stove & Furnace Co.**, Moncton, N. B., manufacturer stoves, ranges, parts etc., is considering one-story addition. Cost close to \$30,000 with equipment.

**Pan-American Petroleum & Transport Co.**, 122 East Forty-second Street, New York, let general contract to Arthur G. McKee & Co., Cleveland, for four buildings at new oil refinery at Texas City, Tex., comprising one-story machine shop, 60 x 190 ft., to be equipped with 5-ton monorail traveling crane, turret lathes, drill presses, pipe threading and cutting machines, etc.; one-story general warehouse and distributing unit, 80 x 180 ft., with overhead traveling cranes; electric power

plant, 5300-hp. capacity, and general office building. Cost over \$200,000 with equipment. Entire project will cost about \$1,500,000.

**Bureau of Reclamation**, Denver, asks bids until Aug. 14 for seat frames, bronze liners and anchor rods (Specification 598-D); until Aug. 18, two or four 82,500-kva. and one 40,000-kva. generators, with exciter, thrust and guide bearings, etc., for Boulder Canyon hydroelectric power plant (Specification 543).

**Sainte Claire Brewing Co.**, Lincoln Avenue, San Jose, Cal., let general contract to Jacks & Irvine, 74 New Montgomery Street, San Francisco, for extensions and improvements, to include new equipment. Cost about \$250,000 with machinery. Frank J. McCarthy, 501 Vicente Street, San Francisco, is in charge.

**Fisk Rubber Co.**, Federal Rubber Co., Division, Cudahy, Wis., plant and machinery, will be offered at public sale, Aug. 15-17, including machine shop equipment, wood-working machinery, power transmission equipment, etc.

**Bureau of Supplies and Accounts**, Navy Department, Washington, asks bids until Aug. 18 for 70 alloy steel air flask forgings (Schedule 530-R) for Newport, R. I., Navy Yard.

**Southern Car & Mfg. Co.**, Birmingham, foundry was destroyed by fire Aug. 2. Machine and forge shops were not damaged and work has been resumed. Foundry will be rebuilt and some additional equipment purchased.

**Quaker Mfg. Co.**, Chicago, manufacturer of oil stoves, is equipping a plant at Chattanooga, Tenn., and will move to that city.

**United States Pipe & Foundry Co.** is building a new unit at its Bessemer, Ala., plant for manufacture of centrifugal pipe. Company has another centrifugal unit at its North Birmingham plant.



# Revised Pig Iron Production Figures for July

**J**ULY production of coke pig iron totaled 1,792,452 gross tons against 1,265,007 tons in June. The July daily rate, at 57,821 tons, increased 37.1 per cent over the June average of 42,166 tons a day. The daily rate in July was the highest since May, 1931, which was 64,325 tons.

There were 106 furnaces in operation on Aug. 1, making iron at the rate of 59,930 tons daily, compared with 90 on July 1, with a daily operating rate of 51,675 tons. Sixteen furnaces were blown in and none taken off blast. The Steel Corporation and the independent steel companies blew in six furnaces each and merchant companies blew in four furnaces.

Among the furnaces blown in are the following:

Name of Furnace	Company
Susquehanna	National Steel Corpn.
Donner	Republic Steel Corpn.
Port Henry	Witherbee, Sherman & Co.
Standish	Chateaugay Ore & Iron Co.
Donora	American Steel & Wire Co.
Duquesne, Isabella and Ohio	Carnegie Steel Co.
Eliza	Jones & Laughlin Steel Corpn.
Monessen	Pittsburgh Steel Co.
Campbell	Youngstown Sheet & Tube Co.
Lorain	National Tube Co.
Toledo	Interlake Iron Corpn.
Colorado	Colorado Fuel & Iron Co.
Ensley	Tennessee Coal, Iron & Railroad Co.
Woodward	Woodward Iron Co.

## Merchant Iron Made, Daily Rate

1933	Tons	1932	Tons
January	2,602	January	6,256
February	2,863	February	7,251
March	2,412	March	7,157
April	1,908	April	5,287
May	3,129	May	4,658
June	4,088	June	6,090
July	6,783	July	3,329
August	.....	August	3,070
September	.....	September	3,213
October	.....	October	4,286
November	.....	November	4,435
December	.....	December	3,674

## Production of Coke, Pig Iron and Ferromanganese

	Gross Tons Pig Iron*		Ferromanganese†	
	1933	1932	1933	1932
January	568,785	972,784	8,810	11,250
February	554,330	964,280	8,591	4,010
March	542,011	967,235	4,783	4,900
April	623,618	852,897	5,857	481
May	887,252	783,554	5,948	5,219
June	1,265,007	628,064	13,074	7,702
½ year	4,441,003	5,168,814	47,063	33,562
July	1,792,452	572,296	18,661	2,299
August	.....	530,576	.....	3,414
September	.....	592,589	.....	2,212
October	.....	644,808	.....	2,302
November	.....	631,280	.....	5,746
December	.....	546,080	.....	7,807
Year	.....	8,686,443	.....	57,342

\*These totals do not include charcoal pig iron. The 1932 production of this iron was 15,055 gross tons.  
†Included in pig iron figures.

## Daily Average Production of Coke Pig Iron

	Gross Tons		
	1933	1932	1931
January	18,348	31,380	55,299
February	19,798	33,251	60,950
March	17,484	31,201	65,556
April	20,787	28,430	67,317
May	28,621	25,276	64,325
June	42,166	20,935	54,621
½ year	24,536	28,412	61,356
July	57,821	18,461	47,201
August	.....	17,115	41,308
September	.....	19,753	38,964
October	.....	20,800	37,848
November	.....	21,042	36,782
December	.....	17,615	31,625
Year	.....	23,733	50,069

## Production by Districts and Coke Furnaces in Blast

Furnaces	Production (Gross Tons)		August 1		July 1	
	July (31 Days)	June (30 Days)	Number in Blast	Operating Rate, Tons a Day	Number in Blast	Operating Rate, Tons a Day
<b>New York:</b>						
Buffalo	77,405	34,428	6	2,765	4	1,740
Other New York and Mass.	4,995	.....	2	445	0	.....
<b>Pennsylvania:</b>						
Lehigh Valley	28,674	22,217	2	925	2	740
Schuylkill Valley	14,680	12,135	1	475	1	405
Susquehanna and Lebanon Valleys	.....	.....	0	.....	0	.....
Ferromanganese	2,888	2,745	1	95	1	90
Pittsburgh District	419,762	253,892	23	14,275	18	10,630
Ferro. and Spiegel	3,598	3,893	1	115	1	130
Shenango Valley	49,937	46,043	3	1,610	3	1,535
Western Pennsylvania	51,748	33,731	3	165	3	2,300
Ferro. and Spiegel	12,175	6,436	1	395	1	250
Maryland	73,952	57,832	3	2,385	3	2,255
Wheeling District	126,568	111,615	6	4,085	6	4,010
<b>Ohio:</b>						
Mahoning Valley	210,713	165,326	12	7,925	10	6,130
Central and Northern	193,062	145,158	11	6,880	9	5,570
Southern	32,048	29,326	2	1,035	2	980
Illinois and Indiana	318,634	233,873	14	10,280	14	10,090
Mich., Wis. and Minn.	29,935	22,068	2	965	2	920
Colo., Mo. and Utah	4,283	4,129	2	525	1	140
<b>The South:</b>						
Virginia	.....	.....	0	.....	0	.....
Kentucky	12,939	11,946	1	415	1	380
Alabama	122,308	66,508	9	4,100	7	3,325
Ferromanganese	.....	.....	0	.....	0	.....
Tennessee	2,148	1,706	1	70	1	55
<b>Total</b>	<b>1,792,452</b>	<b>1,265,007</b>	<b>106</b>	<b>59,930</b>	<b>90</b>	<b>51,675</b>

## A.S.A. Making Provision for Added Projects

**P**ROVISION is being made by the American Standards Association to assure uninterrupted progress of the technical and industrial standardization projects recently taken over from the Bureau of Standards, as announced in THE IRON AGE of July 27.

Howard Coonley, president of the A.S.A., in a recent communication, states: "A skeleton staff to be maintained in the discontinued divisions and sections of the Bureau during a transition period will greatly facilitate the transfer. Individual projects in standardization and simplification can be carried on without any essential change in method. Plans are now being made for obtaining greater financial support for the A.S.A., and when this is accomplished, it is hoped that the A.S.A. may be able to take over a number of the Bureau's personnel."

"It is the belief of Secretary Roper, as well as myself, that this transfer will have far-reaching consequences for every branch of American industry concerned with standardization. The effect of the Secretary's decision

is to concentrate the responsibility in a single organization representative of industry, the public, and the Government. The consolidation of functions in the hands of a single organization is especially important since it comes at a time when the national economy demands a sharp acceleration in standards-making to keep pace with the need for industrial agreements under the National Recovery Act.

"We feel that this work is vital to American industry—that the possibilities for joint action opened up by the National Recovery Act will be greatly broadened if industrial and other groups can cooperate in the establishment of a comprehensive system of fundamental technical standards; and we are happy to offer to all of these groups the machinery of the American Standards Association and the Bureau of Standards—now welded into a single unit."

## OBITUARY

JOSEPH D. OLIVER, for many years president of the Oliver Chilled Plow Works and later chairman of the board of the Oliver Farm Equipment Co., died at his home in South Bend, Ind., on Aug. 6. He was born in Mishawaka, Ind., on Aug. 2, 1850, and attended Notre Dame University and later Depauw University. On leaving college, Mr. Oliver went into the plow manufacturing plant which had been founded by his father in 1867 and learned every detail of the business. He rose gradually in the sales department and took over the management of the company in 1908. Mr. Oliver was a trustee of Purdue University for 18 years, eight of which he served as president of the board. He was a director of the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad, the First National Bank of Chicago and the Chase National Bank of New York.

I. A. MICHAELS, for the last 13 years a member of the sales department of Hyman, Michaels & Co., Chicago, died July 29 at the age of 65 years. He was a native of Cincinnati and was educated in the public schools of that city. He was a brother of Joseph Michaels, one of the founders of Hyman, Michaels & Co.

ADOLPH N. MILLER, president, A. N. Miller Co., Milwaukee, manufacturer of machinery, tools, dies, etc., died July 30, aged 70 years. He was born in Washington County, Wis., and went to Milwaukee, learning the machinist trade and becoming a designing engineer for the Milwaukee Locomotive Co. While thus engaged he perfected what is claimed to be the first successful gasoline locomotive, used extensively in logging, mining and quarrying operations.

## Reading Iron Co. Makes Wolfe V. P.

READING IRON CO., Philadelphia, announces the appointment of William Craig Wolfe as vice-president in charge of sales.

Mr. Wolfe has had long experience in the marketing and merchandising of iron products. During 1907-08 he



W. C. WOLFE

was with the Commercial Steel & Iron Co., Chicago, a brokerage company representing several mills. In 1908, he joined the Seneca Iron & Steel Co., Buffalo, as a salesman, remaining with that company until 1919. He was then appointed assistant to the president of the Standard Steel Tube Co., of Toledo, Ohio, and two years later became manager of sales for the Highland Iron & Steel Co. In 1928, he was made gen-



FREDERICK S. BLACK-ALL, JR., whose election to the presidency of the Taft-Peirce Mfg. Co. was announced in these columns in the issue of July 27.

eral manager, serving in that capacity until his recent appointment with Reading.

Mr. Wolfe was a moving factor in the organization of the Wrought Iron Manufacturers' Association. With the Highland Iron & Steel Co. he started the rolling of iron sheets and sash. In addition, he was responsible for increasing the number of bar iron shapes available.

## A. I. & S. E. E. Convention Oct. 17; Officers Elected

THE annual convention and exposition of the Association of Iron and Steel Electrical Engineers will be held at the William Penn Hotel, Pittsburgh, on Oct. 17, 18 and 19. Among the 15 papers being prepared for presentation are included the following: Cold Mill Practice; Anti-Friction Bearings; Electrical, Mechanical Lubrication and Combustion Developments in the Iron and Steel Industry; Oil-Fired Soaking Pits, and Fundamentals of Open-Hearth Design.

Inspection trips through the American Sheet & Tin Plate Co. at Vandergrift, Pa., and the Allegheny Steel Co. at Brackenridge, Pa., are included in the program. In addition, an exposition will be held at the hotel. The display will cover the most modern developments in combustion, lubrication, and electrical, mechanical and safety equipment used in iron and steel plants.

On a recent mail ballot, the members of the association elected the following officers, who assumed their respective duties Aug. 1: W. E. Miller, Bethlehem Steel Co., Johnstown, Pa., president; W. H. Burr, Lukens Steel Co., Coatesville, Pa., first vice-president; J. A. Clauss, Great Lakes Steel Corp., Ecorse, Mich., second vice-president; G. R. Carroll, Jones & Laughlin Steel Corp., Aliquippa, Pa., treasurer; A. D. Adams, Spang, Chalfant & Co., Inc., Ambridge, Pa., secretary. The director-at-large is A. L. Foell, Arthur G. McKee Co., Cleveland, and the two honorary directors are J. Farrington, of Wheeling Steel Corp., Steubenville, Ohio, and E. Friedlander, of Pittsburgh. The nine directors are: W. S. Hall, Illinois Steel Co., Chicago; F. E. Leahy, Youngstown Sheet & Tube Co., Youngstown; J. W. Bates, American Sheet & Tin Plate Co., Vandergrift, Pa.; C. C. Pecu, Bethlehem Steel Co., Lackawanna, N. Y.; J. A. Oartel, Carnegie Steel Co., Pittsburgh; W. A. Perry, Inland Steel Co., Chicago; W. J. Donahue, Republic Steel Corp., Birmingham; C. M. Thompson, Jr., Henry Disston & Sons, Inc., Philadelphia; and C. A. Thayer, Republic Steel Corp., Youngstown.



# PERSONALS

**JAMES E. LOSE**, who, as announced in these columns last week, has been made vice-president in charge of operations for the Carnegie Steel Co., Pittsburgh, was born in Osage County, Kan., Jan. 17, 1891, and received his formal technical training at the Pittsburgh Academy and the Carnegie Institute of Technology, Pittsburgh, entering the steel industry in the drawing room at Carrie blast furnaces of the Carnegie company in 1910. He served subsequently as stockhouse foreman, superintendent of construction, assistant superintendent of blast furnaces and superintendent of blast furnaces at the Carrie plant, which supplies hot metal to the Homestead works directly across the Monongahela River. In April, 1928, he was appointed assistant general superintendent of Homestead works, succeeding to the general superintendency on Oct. 1, 1930. Mr. Lose is a member of the American Iron and Steel Institute and the Eastern States Blast Furnace and Coke Oven Association.

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**MALCOLM F. McCONNELL**, who has been general superintendent of the Mingo, Ohio, works of the Carnegie company since July 1, 1926, has been named to succeed Mr. Lose as general superintendent at Homestead. He was born at New Castle, Pa., in 1880 and attended New Castle High School and the University of Pittsburgh, having been graduated in mechanical engineering from the latter institution in 1902. His first association with the steel industry was with the old National Steel Co. at Sharon, Pa., in 1900, and after leaving college he went with LaBelle Iron Works, Steubenville, Ohio, as construction engineer. He became identified with the Carnegie company as steam engineer at

New Castle works in 1905, and from 1907 until 1909 he served in the Pittsburgh office of William Whigham, assistant to the president. He went to the Mingo works as assistant general superintendent in 1909, remaining in that capacity until 1926. He is a member of the American Iron and Steel Institute, the Eastern States Blast Furnace and Coke Oven Association, the American Society of Mechanical Engineers and the Engineers Society of Western Pennsylvania.

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**ROBERT S. QUINN** succeeds Mr. McConnell as general superintendent of Mingo works. He was born at Belaire, Ohio, in 1876, and after attending Mingo High School, went to work as a crane man in the Mingo works of the Old Junction Iron & Steel Co. He became a machinists' apprentice at this plant in 1894 and, five years later, was made machine shop foreman for the Aetna Iron & Steel Co. at Mingo. When this plant was absorbed by the National Steel Co. in 1901, he became assistant master mechanic, remaining with the company after its absorption by the Carnegie company. He was made master mechanic in 1911 and assistant general superintendent on Oct. 1, 1927, a position he has held until his recent appointment. Mr. Quinn is a member of the American Iron and Steel Institute and the Engineers Society of Western Pennsylvania.

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**HUGH B. CONOVER**, who has been named assistant general superintendent at Mingo, has been master mechanic in charge of the mechanical and electrical departments at that plant since Oct. 1, 1927. He was born at Red Bank, N. J., in 1884 and was graduated from Cornell University in

1907. He was identified with the General Electric Co., Schenectady, N. Y., the Public Service Corp. of New Jersey and the Sioux City Gas & Electric Co., Sioux City, Iowa, before going with the Carnegie company as superintendent of the electrical department at Mingo on Sept. 1, 1912. He is a member of the Association of Iron and Steel Electrical Engineers.

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**A. B. HASLAM** has joined the sales force of the Dean Machinery Co., Chicago. Mr. Haslam was formerly connected with the Marquette Tool Co. and also with the E. W. Bliss Co.

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**LEM ADAMS**, chief engineer for the Union Pacific Railroad, has severed his connection with that company to assume a similar position with the Oxweld Railroad Service Co., a subsidiary of Union Carbide & Carbon Corp., with headquarters at Chicago.

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**M. H. GEISKING**, formerly manager of sales for the New Orleans district office of the Tennessee Coal, Iron & Railroad Co., has been appointed assistant to the general manager of sales, with headquarters at Birmingham. The New Orleans office has been discontinued as a district office and is now being operated as a sub-office of the general sales office at Birmingham. It is in charge of J. P. PANNILL, formerly assistant manager of the district office. E. E. ALDOUS has been appointed manager of sales for the Texas district office at Houston, with R. J. STAKELUM as assistant manager of sales.

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**A. W. MACE**, formerly assistant to vice-president in charge of distribution, United States Steel Corp., has been appointed assistant to the president of the Ludlum Steel Co. to supervise the administration of the Iron and Steel Industry Code throughout the Ludlum organization.



J. E. LOSE



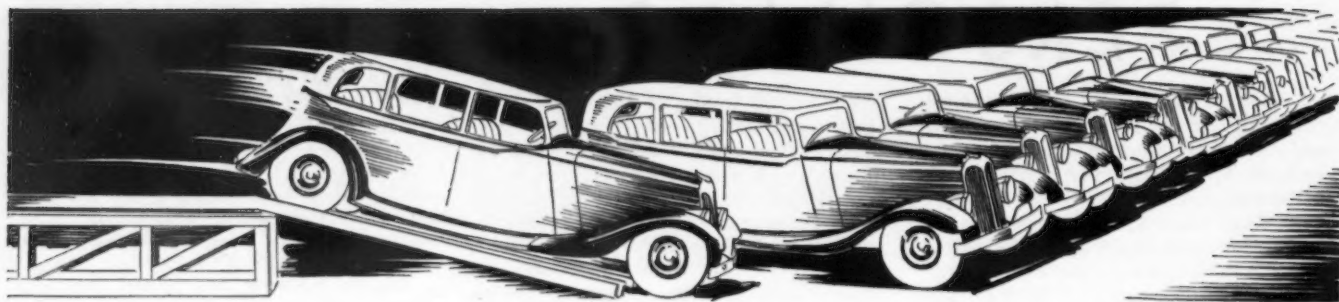
M. F. McCONNELL



ROBERT S. QUINN



H. B. CONOVER



▲ ▲ ▲ THIS WEEK ON THE ASSEMBLY LINE ▲ ▲ ▲

## Automotive Steel Requirements Taper

DETROIT, Aug. 8.

**T**HE uncertainty existing today throughout industry, which probably won't be cleared up until codes are established and approved and the course of business for the months immediately ahead is charted, is reflected in the automotive trade. With costs of labor and materials already having advanced, motor car manufacturers are keeping a close watch on production to see that it does not run ahead of retail sales. Purchasing departments are vigilant in their efforts to avoid over-buying of items for current models, yet plans for 1934 are not sufficiently matured to the extent that specifications of materials have been approved and orders can be placed. This condition is being particularly felt in local steel circles. The volume of new business has declined perceptibly, and the outlook for the remainder of August gives no promise of a reversal of the present downward trend.

There is nothing alarming about the situation. The automobile industry has enjoyed a far greater run of business than it anticipated at the beginning of the year and seasonal influences, happily postponed beyond their usual time, finally are coming into play. Even now they are less harsh than one might expect, and assemblies this month should be over the 200,000 mark for the fourth consecutive month. Activities in the last half of August will tell the story of what the month's output will be; the schedule then is dependent on retail sales in the first 10 days.

### No Disposition to Anticipate in Buying

The strain under which production departments have been laboring is still present. Automobile makers continue to hammer away at steel mills and other suppliers for quick deliveries, although in at least some cases

stocks on hand are of more comfortable size than a few weeks ago. In a few instances motor car companies have follow-up men in suppliers' plants for the first time since the boom days of 1928 and 1929. However, there is no disposition to anticipate requirements of steel, despite the rather costly experience of some companies in finding during the last 60 days that they could not secure certain grades overnight. One of the largest makers privately admits that emergency purchases of steel out of local warehouses have recently cost them the most money in a number of years. That the automobile people are finally awakening to the realization that steel mills no longer can furnish steel so promptly as in the darkest days of the depression is shown by the placing of orders by the Ford Motor Co. for September delivery. For the last few years Ford has waited until the twentieth of the month to give releases for the following month.

### Price Advance Would Freeze Market

**W**ITH respect to next year's models, automobile manufacturers are torn between two desires. One is to continue production of their current lines until the last possible moment, especially since retail sales have been far above expectations; the other is to change over to 1934 cars at an early date so that prices can be boosted to take care of recent advances in costs. Manufacturers generally believe it would be injudicious to pass along to the public at this time these extra costs in the form of higher retail prices. Retail demand is slowly tapering, but should continue relatively good if the status quo is undisturbed. A price advance would probably tend to freeze the market for cars until new models appeared. However, there is little evidence to support the belief that new lines will be out prior to No-

vember and December. It is true that the Ternstedt Mfg. Co. will begin in September to make hardware for General Motors' 1934 cars, but it usually is far ahead of the car assembly line. It likewise is true that Chevrolet already has launched its tooling up program, but this is understood to be of such major proportions that an early start was essential. It is not a forerunner of introduction of new cars before the usual time.

### Tool Shops See Better Business

Tool and die makers are confident that the amount of business to be placed with them by the automobile industry will far exceed that of last year. At that time automotive executives envisioned an extremely lean market for 1933 and drastically curtailed their expenditures for dies. Subsequent events proved that retail sales were far better than expected and production was stepped up far beyond original schedules. This has resulted in the working of available dies 24 hr. a day. More dies could have been used, but production officials thought them too costly to order in the middle of the year, since they would be scrapped in three to five months. Next year automobile plants will not be caught in the same predicament. They foresee at least a better year than 1933 and will prepare for it accordingly.

**C**HEVROLET has let out considerable die work, but has restricted it to the Detroit district. The reason for this is that the dies will be made close at hand where Chevrolet officials can keep their eyes on the work and changes can be made without delay and confusion. One local company is said to have Chevrolet die and tool orders totaling over \$100,000. In addition, Chevrolet has ordered \$100,000 worth of special machines from a prominent machine tool builder for



its gear and axle plant. It is reported that Chevrolet will complete its equipment buying program, said to be about \$1,000,000 in the aggregate, by Sept. 15. The "bigger and better car" psychology still motivates automotive executives, for the 1934 Chevrolet will be longer than the present car.

Production figures are encouraging. Chevrolet made 80,250 cars in July, giving it a total of 438,000 cars for the first seven months of the year, as against 394,000 in all of 1932. Its schedule for August still stands tentatively at 65,000, but probably will be raised somewhat. Plymouth turned out 31,000 cars in July, and now has on file 12,000 orders for this month, assemblies for which will be at least 25,000 cars. Oldsmobile and Buick each made about 4000 cars last month and Pontiac 12,000. To date this year Pontiac has assembled about 70,000 jobs. De Soto is scheduling 3500 cars for August, the same figure as in July. Dodge built 13,820 cars last month, of which 11,000 were passenger cars. Chrysler Corp. shipped 55,119 units in July and 272,888 units in the first seven months of this year. The latter figure is 23 per cent greater than in all of last year. The Dodge truck and Fargo bus divisions made 16,043 units through July this year, or 50 per cent more than in the entire year of 1932.

#### Detroit Notes

Ford is said to have sold not only its entire yard stock of scrap, but also is disposing of scrap from current production. This would seem to dispel any doubt that its steel plant will remain down indefinitely. . . . Chrysler is preparing to erect a new administration building at its East Jefferson plant. . . . The Chevrolet gray iron foundry at Saginaw has been pouring about 1600 tons of iron a day, five days a week, making heavy castings for Chevrolet and Pontiac. . . . Ford is planning on restricting drive-aways and truck-aways of new cars to distances within 200 miles of its plants, giving the long-distance hauls to the railroads. . . . The Wilson Foundry & Machine Co., subsidiary of Willys-Overland, is preparing to dispose of a large number of machine tools which it is not justified in keeping since its business has shrunk drastically. . . . Chrysler has transferred many machine tools from its Newcastle, Ind., plant to Detroit.

## Am. Steel Foundries Reports Deficit

AMERICAN Steel Foundries reports net loss of \$907,072 for 6 months ended June 30. This compares with \$636,873 net loss in the comparable period of 1932. June quarter consolidated net loss totaled \$411,540, compared with \$286,573 net loss in the three months ended June 30, 1932.

## Ingot Output In July Tops 3,000,000 Tons

WITH accumulating speed, the operating rate of the steel industry proceeded to new heights in July, the official report of the American Iron and Steel Institute showing an average of 58.95 per cent of capacity for the month. Total output of all companies, as estimated by the Institute, reached 3,203,810 tons,

this being the largest output since June, 1930.

Daily output increased even more rapidly than the figures for the month indicate, since there were but 25 working days included.

The tables show the monthly production statistics for the current year and for the months of 1932.

### PRODUCTION OF OPEN-HEARTH AND BESSEMER STEEL INGOTS (Gross Tons)

Reported for 1933 by Companies Which Made 96.57 Per Cent of 1932 Ingot Output

1933	Open-Hearth	Bessemer	Calculated Output All Companies		No. of Working Days	Per Cent Operation
			Monthly	Daily		
January	885,743	109,000	1,030,075	39,618	26	18.23
February	922,806	126,781	1,086,867	45,286	24	20.83
March	784,168	94,509	909,886	33,693	27	15.50
April	1,180,893	135,217	1,362,856	54,514	25	25.08
May	1,716,482	216,841	2,001,991	74,143	27	34.11
June	2,211,657	296,765	2,597,517	99,904	26	45.96
July	2,738,083	355,836	3,203,810	128,152	25	58.95
Seven Months	10,439,832	1,334,949	12,193,002	67,739	180	31.16

The figures of "per cent of operation" are based on the annual capacity as of Dec. 31, 1932, of 67,386,130 gross tons for Bessemer and open-hearth steel ingots.

### PRODUCTION OF OPEN-HEARTH AND BESSEMER STEEL INGOTS (Gross Tons)

Reported for 1933 by Companies Which Made 93.71 Per Cent of 1932 Ingot Output

1932	Open-Hearth	Bessemer	Calculated Output All Companies		No. of Working Days	Per Cent Operation
			Monthly	Daily		
January	1,230,907	160,633	1,484,991	57,115	26	26.41
February	1,230,970	157,067	1,481,253	59,250	25	27.40
March	1,149,193	193,944	1,433,337	53,087	27	24.55
April	1,036,163	144,197	1,259,629	48,447	26	22.40
May	950,838	103,593	1,125,243	43,279	26	20.01
June	755,068	100,249	912,757	35,106	26	16.23
July	653,039	102,916	806,722	32,269	25	14.92
August	696,122	97,323	846,730	31,360	27	14.50
September	804,470	124,970	991,858	38,148	26	17.64
October	885,773	132,876	1,087,058	41,810	26	19.33
November	838,419	128,844	1,032,221	39,701	26	18.36
December	724,917	81,932	861,034	33,117	26	15.31
Total	10,955,879	1,528,544	13,322,833	42,701	312	19.75

The figures of "per cent of operation" are based on the annual capacity as of Dec. 31, 1931, of 67,473,630 gross tons for Bessemer and open-hearth steel ingots.

## Pressed Metal Institute Code Finals in Cleveland Aug. 17

THERE will be a meeting of the Pressed Metal Institute on Thursday, Aug. 17, at 9:30 a.m., at the Statler Hotel in Cleveland, to consider final draft of the fair trade code for the job stamping industry. The meeting was originally set—and it is for any one interested—for Aug. 10, but meanwhile a general meeting for all metal parts fabricating industries has been called for that time at the Carlton Hotel, Washington.

This code is planned to cover the activities of plants doing job stamping or custom work. Custom stampings are defined in the constitution of the Pressed Metal Institute as "all stampings manufactured and sold which are not identified through reputation or origin as private property of the manufacturer producing them."

For further information address Malcolm Baird, secretary-treasurer, at the central office at Room 31, 232 Delaware Avenue, Buffalo, N. Y. Phone Cleveland 3891.

Harnischfeger Corp., 4401 West National Avenue, Milwaukee, which recently resumed the production of special machines used in lining beer barrels with pitch, a line practically suspended since 1919, so far has manufactured 25 large units for breweries in Milwaukee and in the East, and has just received an order for two more. The machines weigh about four tons each and throw work into all departments of the plant, more especially the steel, machinery and electrical departments, it is stated.



▲ THIS WEEK IN WASHINGTON ▲

## Final Action Near On Steel Code

*Industrial Relations Board May Follow Textile Set-Up.  
Johnson Would Avoid Price Fixing.*

**W**ASHINGTON, Aug. 8.—The report of Deputy Administrator Kenneth M. Simpson on the iron and steel code is expected to be made to Industrial Recovery Administrator Hugh S. Johnson either the latter part of the present or the forepart of next week. When he gets it, General Johnson will promptly review the code, go over it with the industry and submit it to President Roosevelt for approval. There is, of course, no way of telling how soon the steel code may become the "law merchant" for the steel industry but it is hoped to bring this about as early as possible.

Prodigious as is the work of analyzing the steel code, submitted through the American Iron and Steel Institute, it was stated that good progress had been made in going over the volume of data by the statistical department of the Administration. Specialists are completing studies of each provision of the code, evidence given at the hearing, briefs filed, material supplied by the Federal Trade Commission and other reports.

Upon this study, Deputy Administrator Simpson will make his recommendations. After that, he will call back spokesmen for the steel industry and ask "How about it?"

It is understood that the Board of Directors of the American Iron and Steel Institute will meet again in Washington, the date of meeting has not yet been decided, but will not occur this week. The Board last Tuesday and Wednesday, following the hearing on Monday of last week, conferred at the Mayflower Hotel and is reported to have gone over the hearings. Particular attention is said to have been given to points raised by General Counsel Donald Richberg of the Administration. These questions concerned principally the matter of control of production and prices, protection of consumers, and establishing

By L. W. MOFFETT

Resident Washington Editor, The Iron Age

of basing points. The questions were directed to President R. P. Lamont of the Institute.

These issues were largely answered in a report made to the Administration by Mr. Lamont from New York on Friday of last week, in which among other things he said the steel industry could go no further than the code provisions as to hours of work, wages, etc. On consumer protection,

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"I have said many times that the object of the National Recovery Act is not a long-term proposition. But its purpose is to see if we can improve upon the chaotic conditions that exist in some industries and upon the violently fluctuating conditions that exist in certain industries due to seasonal and cyclical variations, the theories and fallacies to which a great many men have subscribed.

"Now if they succeed in this, and the industry has got two years to try it, I suppose that the good that remains in this Act will continue and the bad will die in the experience. At least we will have a chance to get away from professional conjecture and get down to a basis to determine whether it will live or not. If it is good it will live. If it is not it will die."

*Gen. Hugh S. Johnson*  
▼ ▼ ▼

he stated the very definiteness of the code provisions "constitutes the greatest safeguards of the interest of the consumers of the products of the industry." He said that "it was the accepted view of the members of the code that the practice of establishing prices for products in the industry upon basing points was a sound economic practice and should be continued without substantial change."

Unconfirmed reports are current that the precedent set up in the cotton textile code may be followed in connection with the steel and other codes. Through an amendment the cotton mill people propose what is called an important departure in dealing with possible labor difficulties, which, the national recovery administration has announced, may well become the model for provisions in other industries "where similar labor complications are likely to arise and is expected to do much toward preventing strikes and lockouts and other interruptions of employment and production."

### A National Industrial Relations Board

**T**HE set-up provides for a national industrial relations board, composed of three members, one to be nominated by the cotton textile committee to represent the employers, one by the labor advisory board of the N. R. A. to represent the employees and the third to be appointed by the administrator. The second recommendation is for state industrial boards, composed of three members, one selected from the employers in the industry, one from employees and the third to represent the public. All will be appointed by the administrator from nominations by the national industrial relations board. The state boards are to cooperate with the employers and employees in organizing industrial relations in individual textile factories and to cooperate with these commit-



tees in the adjustment of differences concerned with working conditions of the industry. The individual factory committees, if they are unable to reach agreements, may appeal to the state board for assistance in arriving at an agreement and if the state board is unable to get agreement at an arrangement then it is to present the controversy to the national relations board for a hearing and final adjustment. Deputy Administrator Nelson Slater and Dr. Leo Wolman, chairman of the labor advisory board, have been appointed to serve with General Johnson as representative of the government. General Johnson referred to the appointments as the "first partnership of the Government, industry and labor under a recovery code act." It is significant that the provision for a committee to arbitrate capital-labor difficulties says that "creation of such industrial relations committees within individual factories shall be without prejudice to the freedom of association provided in the Industrial Recovery Act." This was taken to mean that employers cannot interfere with any effort on the part of employees to join any labor organization they desire for the purpose of collective bargaining.

The set-up also is interesting in view of the recommendation made by President William Green of the American Federation of Labor for creating an advisory council on industrial relations for the steel industry. Though never before given recognition by the steel industry, the American Federation of Labor under this proposal would select three of the suggested seven members of the council, the Steel Institute to also select three and the chairman to be chosen by President Roosevelt.

This cotton textile code plan was viewed not only as further recognition of organized labor, for it will be given greater voice in the industry, but also as indication of control of prices through a planning and supervisory committee of the cotton textile industry. Once established in that industry obviously the precedent would be urged in other industries. The question now looms before the oil, tobacco and coal industries. The tobacco industrial code directly asks for price fixing. A large section of the oil industry is seeking it, though another section is hotly fighting it. A large portion of the bituminous coal industry invites price fixing. All prices naturally would be under Government control. The steel industry always has held out against Government control of prices but the growing demand for "protection of the consumer," so strongly emphasized by Mr. Richberg throughout the steel hearing, implies some form of price control may come about. It may be through production control of which Mr. Richberg also spoke, though the only control directly provided in the steel code is through temporary ces-

sation of blast furnace, open hearth and Bessemer converter construction.

"Regulation of the industry's practices—including sales of merchandise, uniform accounting, use of machinery, hours and wages, arrangement for credit, except under the code—comes within the scope of the cotton textile authority," said General Johnson, referring to that provision of the cotton textile agreement. It shows the far-reaching character of the new government-business "partnership."

#### General Johnson Shys at Price Fixing

GENERAL JOHNSON, however, has shied at price fixing. He says he will stand his ground against it. This declaration was made by General Johnson after he struck out a price fixing, as well as a "cost recovery" clause, which a strong force in the oil industry sought to insert in the oil code. General Johnson has said that control of prices can be achieved only through control of production. Senator Robert F. Wagner, Democrat, New York, who sponsored the National Recovery Act in Congress, said repeatedly that it is not a price-fixing measure.

Fundamental as are the questions of basing points, consumer protection, prices, etc., they do not rank in importance in the view of the steel industry above that of the labor question. While the issue between the open shop and organized labor was greatly minimized at the steel code hearing when the formal open shop declaration was withdrawn, it is distinctly a swiftly moving undercurrent. It has been heightened by the coal strike situation in western and central Pennsylvania. There is a widespread opinion that organized labor again scored a recognition not present during the past decade when the United Mine Workers of America through its president, John L. Lewis, was given powerful voice in deciding upon a so-called truce. It resulted in the setting up by President Roosevelt of the national board of arbitration, which began to operate yesterday. The strike, alleged by operators to have resulted from organized labor agitation and by organized labor to have resulted from company union agitation, is to be settled by "public opinion." This is the power the Administration relies upon to enforce the board's decision. Meanwhile, however, the union has taken an important position in the negotiations in mines operating under the open shop. It is said this has brought about increased union agitation in the steel and other industries. Use of provisions in the Industrial Recovery Act is being made to this end, though the act, of course, does not require either organized labor or company union membership.

The "pact" between the coal companies and the United Mine Workers carefully provides for agreement for

a truce between the companies and the President and the union and the President. It just as carefully avoids agreement between the companies and the union and vice versa. The issue of recognition or non-recognition therefore is distinctly alive.

Realizing this, General Johnson has advanced to tomorrow the date to begin hearings on coal codes. It had been set for next Monday. Bringing the coal industry under the code, it is pointed out, will give control over strikes through agreements reached, if they are reached. Moreover, reference has been made to the licensing provision of the Industrial Recovery Act as a weapon, one that can be directed against industry but not against labor. The coal industry is widely split into various sections, a fact indicated by the 18 coal codes that have been filed. The larger portion represent open shop mines but there are important closed shop areas also.

The coal strike truce which agrees to employment of check weighmen by all miners has not been wholly successful in view of the refusal of important numbers of workmen to return to the mines. It is said a radical element is seeking control of the situation and that this has caused apprehension among organized labor forces and caused them to take a more moderate course than would otherwise be the case. This reported situation is largely parallel to the steel strike situation of 1919 when W. Z. Foster headed a group of radicals and took control of the strike from organized labor. The latter was as eager for a settlement as was the industry itself, fearing loss of its control over labor.

The national board of arbitration is headed by Senator Wagner. Other members are President Green of the A. F. of L.; Doctor Wolman, chairman of the Labor Advisory Board of the N. R. A. and former research economist for the National Bureau of Economic Research; President Lewis of the United Mine Workers of America; Walter C. Teagle, chairman, Standard Oil Co. of New Jersey; Gerard Swope, chairman, General Electric Co.; Lewis E. Kirstein, president, Edward A. Filene & Co., Boston.

"The Practical Design of Welded Steel Structures," a comprehensive treatise by H. M. Priest, designing engineer, American Bridge Co., is being reprinted by the American Welding Society, 29 West 39th Street, New York. In addition to details of design, the article covers inspection, and there is a digest of the A.W.S. building code and of the society's structural steel welding research report. Charts of direct value to designing engineers are included. Prof. F. P. McKibben's annual meeting paper on "Erecting Steel Buildings and Strengthening Steel Bridges by Welding" is also being reprinted.

# Tonnages Involved in Completed Shipbuilding Awards

WASHINGTON, Aug. 8.—With awards to private shipbuilding and allocations to navy yards completed, the naval program consists of 38 vessels, requiring approximately 83,700 tons of plates and shapes. In addition large steel tonnages will be necessary for forgings, castings and light armor plate. The private yards will build 21 ships, awarded last week, made up of two aircraft carriers, one heavy cruiser, two light cruisers, 14 destroyers and two submarines. The navy yard was allocated 17 vessels comprised of three light cruisers, 10 destroyers, two submarines and two gunboats. Of these 11 were allocated last week when awards were made to private yards. The remaining six vessels had been previously allocated to navy yards.

Private yard awards and navy yard allocations with estimate plate and shape tonnages follow:

	Total Ton- nage	Plate Ton- nage	Shape Ton- nage
<b>Private Yards</b>			
Bethlehem Shipbuilding Corp., Quincy Mass.:			
One heavy cruiser.....	7,000	4,625	2,375
Four destroyers.....	3,200	2,400	800
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.:			
Two aircraft carriers...	18,000	12,000	6,000
New York Shipbuilding Co., Camden, N. J.:			
Two light cruisers.....	14,000	9,250	4,750
Four destroyers.....	3,200	2,400	800
Electric Boat Co., Groton, Conn.:			
Two submarines.....	1,450	1,200	250
Bath Iron Works Corp., Bath, Me.:			
Two destroyers.....	1,600	1,200	400
Federal Shipbuilding & Dry Dock Co., Kearny, N. J.:			
Two destroyers.....	1,600	1,200	400
United Dry Docks, Inc., New York:			
Two destroyers.....	1,600	1,200	400
	51,650	35,475	16,175
<b>Navy Yards</b>			
Norfolk, Va.:			
One light cruiser.....	7,000	4,625	2,375
Two destroyers.....	1,600	1,200	400
Puget Sound, Wash.:			
Two destroyers.....	1,600	1,200	400
Mare Island, Cal.:			
Two destroyers.....	1,600	1,200	400
Charleston, S. C.:			
*One gunboat.....	800	650	150
Portsmouth, N. H.:			
*Two submarines.....	1,450	1,200	250
Philadelphia:			
One light cruiser.....	7,000	4,625	2,375
Two destroyers.....	1,600	1,200	400
Boston:			
*Two destroyers.....	1,600	1,200	400
New York:			
One light cruiser.....	7,000	4,625	2,375
*One gunboat.....	800	650	150
	32,050	23,375	9,675

\*Previously announced.

Bids for steel for the two submarines allocated to the Portsmouth yard were opened today by the Bureau of Supplies and Accounts, Navy Department.

It will be some time before actual rolling of steel for the major portion of the program will be begun for both private and navy yards. Designs for the ships will have to be completed

## Railroad Buying May Stimulate Steel Demand

WASHINGTON, Aug. 8.—Large-scale railroad purchases of steel and other requirements for maintenance work are said to be probable in view of the appeal made to the carriers last Thursday by Transportation Coordinator Joseph B. Eastman to spend every dollar available in putting men back to work. For some time reports have been current that the rail lines were completing programs looking to early orders for steel. The recent pickup in carloadings have resulted in a substantial increase in buying of steel, chiefly for car repair work, but much heavier purchases for maintenance work, for cars, locomotives and rails are said also to have been in contemplation. Financial conditions of the rail carriers are understood to have prevented them coming into the market but the appeal by Mr. Eastman is said to have opened the way to get funds from the Public Works Administration of which advantage may be taken.

Mr. Eastman pointed out that reports indicate that the railroads have restored about 40,000 men to work since June 1 and have also in a considerable number of instances increased the hours of employment of men already at work. However, he suggested this was not all that can be done by way of responding to the country-wide drive to increase employment, build up purchasing power, increase production and sustain it by consumption.

"If all pull together this drive will succeed, but it may fail if some hang back," Mr. Eastman told the railroads. "The railroads will gain directly and immediately if it succeeds, and they have much deferred maintenance work which sorely needs to be done. Money spent for such work will be well spent and consistent with economy. I strongly urge that the railroads spend every available dollar in putting men back to work and in doing so their part in the drive will, I believe, serve their own inter-

and other work preparatory to determining steel specifications will have to be done. Contracts for steel may be closed at a comparatively early date but in that event it is probable that delay will be experienced before detailed specifications will be given to mills which will be necessary before the tonnage is rolled. It was stated that bids for steel for the ships allocated the navy yards will be received "within a reasonable time." It is expected this will be done at about the same time the private yards release steel contracts.

ests as well as those of the country. Further economies in operation, without impairment of service, must not ultimately be neglected, but the immediate need of the country is the return of men to work. I have every reason to believe that the railroad executives sympathize with this point of view and will cooperate."

Responses by executives of large railroads were received by Mr. Eastman. Support was pledged to the appeal to place idle employees back to work. This is expected to be done through loans from the Public Works Administration and from some of the railroads' own funds. It was reported that in the neighborhood of \$1,000,000,000 could be expended for deferred maintenance of the past four years. Strength to this report was given by the fact that Mr. Eastman has written to Public Works Administrator Ickes suggesting that 35 per cent of the money spent for grade crossing elimination would go for labor.

## Pittsburgh Scrap Men Adopt Blanket Code

MEMBERS of the local organization of scrap dealers at Pittsburgh and the immediate vicinity have pledged themselves to immediate adoption of the National Industrial Recovery Act Blanket Code. This step was taken at a recent meeting of the organization's advisory committee, which will urge all members to regulate their working conditions to comply with conditions of the code. The advisory committee includes Herman Tuch, United Iron & Metal Co.; Max Meltzer, Max Meltzer Co.; Lewis W. Landay, M. N. Landay Co.; Jay G. Stephens, Jay G. Stephens Corp.; Homer F. Stocker, H. F. Stocker & Co., and Joseph Fingeret, J. Fingeret & Sons. Fifty dealers in the Pittsburgh district are members of the organization.



## SUMMARY OF THIS WEEK'S BUSINESS

# Fuel Prices Soar as Labor Trouble in Coke Region Remains Unsettled

Both Coke and Coal Prices Mount and Fuel Scarcity Threatens,  
But Steel Production Holds at 57 Per Cent of Capacity

**T**HE forces of recuperation in the iron and steel industry have been checked by complications growing out of the National Industrial Recovery Act. Demand still shows a buoyancy surprising for this season, but it is commencing to waver in the face of continued labor trouble in the Connellsville region, soaring fuel prices, and confusion growing out of the application of the N.R.A. blanket code, under which most iron and steel consumers must operate pending the preparation and adoption of special codes.

An additional deterrent to buying is the resistance of large buyers to the single-price policy recently adopted on leading mill products. Large consumers are unwilling to conform to this new practice until the steel code is officially adopted, and meanwhile are pressing for a continuance of concessions, which in a few cases have been granted, notably on automobile body and steel furniture sheets. Likewise a Detroit base on steel bars has been temporarily reestablished, although the steel code abolished a separate basing point for the automobile city.

**P**RESSURE for concessions, however, is meeting with diminishing success in view of the growing alarm of steel producers over mounting costs. In addition to the increased costs incident to advances in wages and shortened hours, the industry faces not merely soaring prices of fuel but an early shortage, in the event that current labor difficulties are not settled soon.

Furnace coke has risen from \$2.50 to \$2.75 a ton, Connellsville, but only occasional cars can be bought at the advanced figure and some sellers are now asking \$4. Coking coal is no longer available at any price and slack coal has been sold at \$1.25 a ton, western Pennsylvania mines.

Valley operations have reacted to the fuel stringency, ingot output having declined to about 60 per cent of capacity and the lighting of a steel company blast furnace having been indefinitely postponed. Steel production in other districts has not yet been curtailed because of the fuel situation, although there have been slight recessions in the Cleveland-Lorain district and in eastern Pennsylvania. Output in the South will shortly be reduced because of the closing down of the Ensley rail mill. In other centers, recent rates have been maintained and at Chicago there has been a gain, present operations averaging well over 53 per cent as compared with 52 per cent a week ago.

**T**HE national average of steel ingot output is still close to 57 per cent, the rate of a week ago, and any further decline is more likely to be due to a fuel scarcity than to reduced demand. Suspension of operations at certain steel plants may become necessary within the next fortnight if the fuel shortage continues.

Some slight falling off in the steel requirements of the automobile industry is noted, but motor car output for August will nevertheless exceed 200,000 units, according to present indications. An order for 11,500 tons of pipe for a gas line extension in the Southwest was divided between a Western maker and a Valley mill. Of 51,650 tons of plates and shapes required for the Naval vessels placed with private yards, 35,200 tons has been purchased. Bids on part of the 32,050 tons needed for the 16 vessels to be built in Government yards were taken early this week and action on the remainder will follow promptly.

**F**ABRICATED steel awards are light, totaling only 8450 tons, compared with 33,135 tons a week ago. Action on public projects is impeded because of uncertainties surrounding codes under which contractors must operate. There is growing doubt in the steel industry whether the public works program will prove timely enough and large enough to bring business back to normalcy. If Government credit could be extended to private enterprise, surer and quicker results could be obtained. Much business has been blocked in recent months, it is contended, because of credit stringency.

Railroad buying is improving, particularly purchases of steel for car and locomotive repairs. The Burlington has bought 4000 tons of rails, and the Nickel Plate has released 3000 tons against an old order. A release of 6000 to 7000 tons from the New York Central is an early possibility, while the Chesapeake & Ohio is expected to place its 1933 contract the last week in August or the first week in September.

Advances in scrap at Pittsburgh and Philadelphia have raised THE IRON AGE composite for heavy melting steel from \$12.08 to \$12.25 a ton. General adherence to 1.65c., Pittsburgh, on hot strip has advanced THE IRON AGE finished steel composite from 1.973c. to 1.979c. a lb. The pig iron composite is unchanged at \$15.94 a ton.

# ▲▲▲ A Comparison of Prices ▲▲▲

Market Prices at Date, and One Week, One Month and One Year Previous  
Advances Over Past Week in Heavy Type, Declines in Italics

Pig Iron	Aug. 8, 1933	Aug. 1, 1933	July 11, 1933	Aug. 9, 1932
<i>Per Gross Ton:</i>				
No. 2 fdy., Philadelphia.....	\$17.34	\$17.34	\$16.34	\$14.34
No. 2, Valley furnace.....	16.50	16.50	15.50	14.50
No. 2 Southern, Cin'tl.....	17.73	17.73	16.51	13.82
No. 2, Birmingham.....	13.00	13.00	12.00	11.00
No. 2 foundry, Chicago*.....	17.00	17.00	17.00	15.50
Basic, del'd eastern Pa.....	17.09	17.09	16.09	14.50
Basic, Valley furnace.....	16.00	16.00	15.00	13.50
Valley Bessemer, del'd P'gh..	18.89	18.89	17.89	16.89
Malleable, Chicago*.....	17.00	17.00	17.00	15.50
Malleable, Valley.....	16.50	16.50	15.50	14.50
L. S. charcoal, Chicago.....	23.17	23.17	23.17	23.17
Ferromanganese, seab'd car- lots .....	82.00	82.00	82.00	68.00

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

## Rails, Billets, etc.

<i>Per Gross Ton:</i>				
Rails, heavy, at mill.....	\$40.00	\$40.00	\$40.00	\$43.00
Light rails at mill.....	30.00	30.00	30.00	32.00
Rerolling billets, Pittsburgh..	26.00	26.00	26.00	26.00
Sheet bars, Pittsburgh.....	26.00	26.00	26.00	26.00
Slabs, Pittsburgh.....	26.00	26.00	26.00	26.00
Forging billets, Pittsburgh...	31.00	31.00	31.00	33.00
Wire rods, Pittsburgh.....	35.00	35.00	35.00	37.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb...	1.60	1.60	1.60	1.60

## Finished Steel

<i>Per Lb. to Large Buyers:</i>	Cents	Cents	Cents	Cents
Bars, Pittsburgh.....	1.60	1.60	1.60	1.60
Bars, Chicago.....	1.70	1.70	1.70	1.70
Bars, Cleveland.....	1.65	1.65	1.65	1.65
Bars, New York.....	1.95	1.95	1.95	1.95
Tank plates, Pittsburgh.....	1.60	1.60	1.60	1.60
Tank plates, Chicago.....	1.70	1.70	1.70	1.70
Tank plates, New York.....	1.898	1.898	1.898	1.898
Structural shapes, Pittsburgh..	1.60	1.60	1.60	1.60
Structural shapes, Chicago...	1.70	1.70	1.70	1.70
Structural shapes, New York..	1.86775	1.86775	1.86775	1.86775
Cold-finished bars, Pittsburgh	1.70	1.70	1.70	1.70
Hot-rolled strips, Pittsburgh..	1.65	1.60	1.60	1.45
Cold-rolled strips, Pittsburgh	2.25	2.25	2.25	2.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Finished Steel	Aug. 8, 1933	Aug. 1, 1933	July 11, 1933	Aug. 9, 1932
<i>Per Lb. to Large Buyers:</i>	Cents	Cents	Cents	Cents
Hot-rolled annealed sheets, No. 24, Pittsburgh.....	2.25	2.25	2.25	2.20
Hot-rolled annealed sheets, No. 24, Chicago dist. mill..	2.35	2.35	2.35	2.30
Sheets, galv., No. 24, P'gh...	2.85	2.85	2.85	2.85
Sheets, galv., No. 24, Chicago dist. mill.....	2.95	2.95	2.95	2.95
Hot-rolled sheets, No. 10, Pittsburgh .....	1.65	1.65	1.65	1.55
Hot-rolled sheets, No. 10, Chi- cago dist. mill.....	1.75	1.75	1.75	1.65
Wire nails, Pittsburgh.....	2.10	2.10	2.10	1.95
Wire nails, Chicago dist. mill	2.15	2.15	2.15	2.00
Plain wire, Pittsburgh.....	2.10	2.10	2.10	2.20
Plain wire, Chicago dist. mill.	2.15	2.15	2.15	2.25
Barbed wire, galv., Pittsburgh	2.60	2.60	2.60	2.60
Barbed wire, galv., Chicago dist. mill.....	2.65	2.65	2.65	2.65
Tin plate, 100 lb. box, P'gh..	\$4.25	\$4.25	\$4.25	\$4.75

## Old Material

<i>Per Gross Ton:</i>				
Heavy melting steel, P'gh... <b>\$14.00</b>	\$13.75	\$12.12½	\$8.50	
Heavy melting steel, Phila... <b>12.00</b>	11.75	10.25	6.25	
Heavy melting steel, Ch'go... <b>10.75</b>	10.75	10.25	5.75	
Carwheels, Chicago.....	10.50	10.50	9.50	6.00
Carwheels, Philadelphia.....	12.75	12.75	12.25	8.50
No. 1 cast, Pittsburgh.....	11.75	11.75	10.50	9.50
No. 1 cast, Philadelphia.....	12.50	12.50	12.25	8.00
No. 1 cast, Ch'go (net ton)..	10.50	10.50	10.50	6.00
No. 1 RR. wrot., Phila.....	12.00	12.00	10.75	8.50
No. 1 RR. wrot., Ch'go (net)	9.00	9.00	6.50	3.75

## Coke, Connellsville

<i>Per Net Ton at Oven:</i>				
Furnace coke, prompt.....	<b>\$2.75</b>	\$2.50	\$2.25	\$2.00
Foundry coke, prompt.....	<b>3.50</b>	3.00	3.00	3.00

## Metals

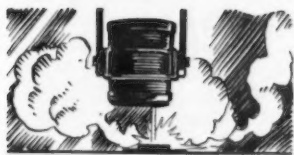
<i>Per Lb. to Large Buyers:</i>	Cents	Cents	Cents	Cents
Electrolytic copper, refinery..	8.75	8.75	8.75	5.25
Lake copper, New York.....	9.00	9.00	9.00	5.62½
Tin (Straits), New York.....	<b>44.00</b>	44.25	46.00	22.65
Zinc, East St. Louis.....	5.00	5.00	4.85	2.80
Zinc, New York.....	5.37	5.37	5.22	3.17
Lead, St. Louis.....	4.35	4.35	4.35	2.95
Lead, New York.....	4.50	4.50	4.50	3.10
Antimony (Asiatic), N. Y....	7.25	7.25	6.75	5.00

# ▲▲▲ The Iron Age Composite Prices ▲▲▲

	Finished Steel	Pig Iron	Steel Scrap
Aug. 8, 1933	1.979c. a Lb.	\$15.94 a Gross Ton	\$12.25 a Gross Ton
One week ago	1.973c.	15.94	12.08
One month ago	1.973c.	15.17	10.88
One year ago	1.976c.	13.76	6.83
	Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strips. These products make 85 per cent of the United States output.	Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.	Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.
	HIGH 1933 ..... 1.979c., Aug. 8; 1.867c., Apr. 18 1932 ..... 1.977c., Oct. 4; 1.926c., Feb. 2 1931 ..... 2.037c., Jan. 13; 1.945c., Dec. 29 1930 ..... 2.037c., Jan. 13; 2.018c., Dec. 9 1929 ..... 2.317c., April 2; 2.273c., Oct. 29 1928 ..... 2.286c., Dec. 11; 2.217c., July 17 1927 ..... 2.402c., Jan. 4; 2.212c., Nov. 1	HIGH 1933 ..... \$15.94, Aug. 1; \$13.56, Jan. 3 1932 ..... 14.81, Jan. 5; 13.56, Dec. 6 1931 ..... 15.90, Jan. 6; 14.79, Dec. 15 1930 ..... 18.21, Jan. 7; 15.90, Dec. 16 1929 ..... 18.71, May 14; 18.21, Dec. 17 1928 ..... 18.59, Nov. 27; 17.04, July 24 1927 ..... 19.71, Jan. 4; 17.54, Nov. 1	HIGH 1933 ..... \$12.25, Aug. 8; \$6.75, Jan. 3 1932 ..... 8.50, Jan. 12; 6.42, July 5 1931 ..... 11.33, Jan. 6; 8.50, Dec. 29 1930 ..... 15.00, Feb. 18; 11.25, Dec. 9 1929 ..... 17.58, Jan. 29; 14.08, Dec. 3 1928 ..... 16.50, Dec. 31; 13.08, July 2 1927 ..... 15.25, Jan. 11; 13.08, Nov. 22



# Strike Clouds Operating Outlook at Pittsburgh



**Fuel Prices Soar But Ingot Output  
Is Sustained at 49 Per Cent—  
Scrap Makes a Further Advance**

**P**ITTSBURGH, Aug. 8.—While the local steel industry is still beset by uncertainties of labor unsettlement in the Pennsylvania coke regions and the impending establishment of the iron and steel code, releases and new orders since the first of the month have been in surprising good volume. Current mill activity, however, still relies principally upon backlogs. Producers of billets, slabs and sheet bars are experiencing difficulty in building up stocks in the face of insistent demand from finishing mills. Demand for heavy hot-rolled products is spreading. New structural steel projects are increasing, with specifications for brewery construction predominating. No releases of plate orders for the Navy shipbuilding program have reached makers in this district, although mills expect to benefit soon from that quarter. Miscellaneous private work involving steel is slowly expanding, but important projects are still lagging as a consequence of capital limitations.

Bars, plates and shapes are being held strictly to 1.60c., Pittsburgh, following expiration of low-priced contracts on July 31. In the meantime, sellers of bars plan to adhere rigidly to lump sum quantity differentials on lots of 6000 pounds or less, which have been in effect heretofore but have not always been applied. Although the automotive industry has let up slightly in calls for sheets, it has not perceptibly lessened demand for strip steel, cold finished bars and manufacturers' wire and spring wire. Other grades of sheets continue to be in steady demand. Hot-rolled annealed sheets are moving freely to beer barrel makers. Tin plate mills are still engaged at near capacity, and, based on current bookings, will be heavily occupied well into September.

Steel ingot output in the Pittsburgh district is sustained at 49 per cent. Steel operations in the Valley and nearby northern Ohio, however, slid off five points in the past week and now average barely 60 per cent. Production in the Wheeling district is unchanged at 85 per cent.

Fuel markets still are unsettled by the strike in the Connellsville region, and asking prices are higher, with supplies scant. A \$5 a ton advance has been made on fire brick and silica brick.

## Pig Iron

With labor difficulties persisting in the coke regions, producers are still somewhat uncertain as to their early fuel supplies. No serious interruptions in operations in this district have yet occurred, with the possible exception of deferment in lighting one or two steel works stacks that were scheduled to resume. While users of basic iron have naturally been considering additional tonnage for emergency needs in the event that the strikes are prolonged, no significant covering has appeared. Demand from the foundry trade is still quiet. Prices continue to be firm, with full schedules applying to small-lot sales.

## Semi-Finished Steel

Shipments of billets, slabs and sheet bars are practically in step with production. Finishing mills are specifying freely against commitments made in June and July, and producers have not yet been able to accumulate stocks. A few consumers have placed orders since Aug. 1 at current prices. Billets, slabs and sheet bars are well established at \$26, Pittsburgh, as are forging billets at \$31, Pittsburgh. Wire rods are in good demand from the bolt and nut makers and are steady at \$35, Pittsburgh or Cleveland.

## Rails and Track Accessories

Significant buying by the railroads still is lacking. Miscellaneous demand, however, is holding up. The recently established prices covering delivery through September have met with little test, but are nominally firm.

## Bars, Plates and Shapes

Movement of heavy hot-rolled products continues brisk against old specifications. Fresh specifications for structural steel are increasing. New brewery construction accounts for the bulk of recent contracts. Structural inquiries also have increased in number, although individual tonnage requirements continue to run small. Practically all projected structural work is for bridge construction. Makers of plates still rely chiefly on the release of orders for the Navy shipbuilding program, but a sustained demand for plates in the brewing industry is expected to attend the gradually improving financial position of beer makers. Miscellaneous

private work is slowly increasing, although not much tonnage may be expected from that quarter until credit thaws out. The barge market is devoid of inquiry at the moment, but yards continue to be active on previous commitments.

In the absence of important tonnage, the prices for bars, plates and shapes have not been tested, but makers are apparently holding firmly to 1.60c., Pittsburgh.

## Tubular Goods

Standard pipe remains comparatively active, and occasional orders for boiler tubes are being placed. Oil country goods are adversely influenced by rigid conservation policies in effect in the east Texas and the Conroe oil fields. No drilling is under way, and no additional lines, except possibly some minor auxiliary projects are in prospect. Lap-welded steel boiler tubes are well held at recently advanced prices.

## Cold Finished Steel Bars

The recent advance of \$5 a ton has apparently met with little resistance from consumers. A few moderate tonnages were placed at the increased price in the past week. Demand from the automotive industry and from parts makers is exceptionally well sustained, and producers are actively engaged in meeting rush requirements from those quarters. Shipments to warehouses, which specified heavily in anticipation of the price advance, continue unabated.

## Wire Products

Bookings since the price advances on Aug. 1 have been in surprisingly good volume. Plain wire for shipment to the automotive industry is particularly active, while wire nails are being taken freely by the jobbing trade. The latter demand is probably stimulated chiefly by expectation of further price advances when the steel code becomes operative.

## Sheets

A slight recession is noted in the movement of sheets to the automotive industry. With a leading automobile manufacturer at Detroit scheduled to run at an increased rate through August, however, the aggregate movement of auto body sheets is not expected to show a sharp decline for the month. Demand for exceptionally wide sizes is particularly active. Beer barrel manufacturers continue to account for the bulk of hot-rolled and annealed sheet orders. Practically no change is noted in sheet mill operations, which are maintained at 55 to 60 per cent of capacity. Sheet prices are particularly well established, with the possible exception of auto body and steel furniture sheets, which are going at 2.30c., Pittsburgh, although the asking price is 2.60c. Galvanized sheets are notably firm at 2.85c., Pitts-

burgh, and hot-rolled annealed sheets are taking the full schedule of 2.25c., Pittsburgh.

### Tin Plate

Specifications are well sustained. All makers continue to restrict operations to 16 turns, with the result that backlogs remain heavy. The industry is operating at about 95 per cent of capacity, and, based on present orders, will probably continue at that rate well into September. Export inquiry has increased materially in recent weeks, but few domestic mills are in position to accept additional tonnage for shipment much before October.

### Strip Steel

Purchase of a fairly large tonnage of hot-rolled strip for delivery at Detroit featured this market in the past week. A pick-up in small-lot business is also noted. With practically all large consumers covered for third quarter at 1.60c., this price continues to rule on the majority of current shipments. Nevertheless all makers are now quoting 1.65c., Pittsburgh, on new orders and a fair amount of tonnage has been taken at this price in the last week. On cold-rolled strip the 2.25c., Pittsburgh or Cleveland, quotation is well sustained, although shipments at lower figures have not been cleaned up.

### Refractories

Quotations on fire clay and silica brick have been advanced \$5 a 1000, effective immediately. High-heat fire clay brick is now quoted at \$45 a 1000 in Pennsylvania, Ohio, Maryland, Kentucky, Missouri and Illinois. The usual \$5 a 1000 differential under this price is quoted on intermediate duty brick. Pennsylvania silica brick is quoted at \$45, f.o.b. works, with \$54 to prevail in Chicago, and \$55 in Birmingham. Ground fire clay and silica clay are unchanged, as are chrome and magnesite brick.

### Coal and Coke

Continuation of the strike in the Connellsville region has further unsettled the coal and coke markets in this district, and prices are largely nominal. Furnace coke is no longer available at less than \$2.75, Connellsville, and only occasional cars could be bought at this figure. The larger sellers are quoting at least \$4, but have scarcely any offerings to make. No sales have been made to establish a market. Makers of the premium brands of foundry coke have advanced their price 50c. a ton to \$4.50, Connellsville, and ordinary foundry coke is no longer available at less than \$3.50. Again scarcely any material is being offered. Coal prices are also considerably stronger, as steel companies and other consumers seek to cover their requirements in case of further prolongation of the strike. Slack has been sold at \$1.25 a ton in

large tonnages, and coking coal is no longer available at any price.

### Scrap

Purchases of No. 1 heavy melting steel by several consumers have established the market at \$13.50 to \$14.50. A leading user has purchased approximately 15,000 tons, paying \$13.75 for nearby delivery points and \$14 for a plant which ordinarily commands a 25 per cent premium because of the slightly higher freight rate. Another

sale of strictly No. 1 railroad steel brought \$14.50, or the usual 50c. differential over ordinary No. 1 heavy-melting steel. Sales of a number of other grades have established prices at 50c. to \$1 a ton over previous quotations. Dealers are apparently experiencing difficulty in covering for No. 1 steel at \$13.50, but are generally not inclined to raise their offering prices to much higher levels. No. 1 steel offered recently by the Pennsylvania Railroad brought about \$14.30.

## Operations Recede to 60 Per Cent in Valleys as Business Tapers Off

YOUNGSTOWN, Aug. 8.—The tension that tended last week to retard steel operations in the Valleys has been relaxed somewhat by the truce declared on Saturday in disputes between coal miners and operators in western Pennsylvania. Although labor differences will not be definitely settled until hearings at Washington tomorrow have forced an agreement, steel makers have been freed from the uncertainty of fuel supply at least for the immediate future.

Last week, when the coal strike loomed as a serious factor in maintaining regular operations at local steel mills, several producers gauged their operating schedules at a slower pace in order to conserve existing fuel supplies. Although most steel mills here are understood to be fairly well covered ahead for their fuel needs, nevertheless some makers obtained additional coal in eastern Kentucky and West Virginia fields to insure against contingencies that might have arisen if the strike had continued for a protracted period.

In one or two cases, several open-hearths were taken off in the scaling down of operations. Another factor that has tended to lower ingot output in the district is the falling off in new bookings. Steel ingot production in the Valleys and nearby northern Ohio mills therefore average barely 60 per cent of capacity, a drop of five points in the past week. A Republic Steel Corp. furnace, which was scheduled to resume last week, was not lighted because of the coal strike. Raw materials have been moving irregularly since the outbreak in the coal regions, and coke and coal shipments have been virtually halted. Normal deliveries of fuel will not be accomplished probably until the large accumulation of orders that piled up at the inception of the strike is worked off.

With indications pointing to a likely slackening in business during August, steel mills will undoubtedly be able to reduce materially the sub-

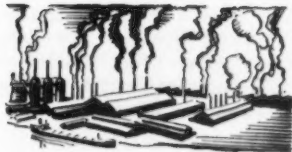
stantial backlogs built up on June and July specifications. Although miscellaneous steel demand has shown up rather well in the early days of August, in some cases running slightly ahead of that in the same period last month, fresh specifications generally reflect the cautious policies of consumers in forward covering, pending clarification of prices filed under the iron and steel code. Tin plate mills are still engaged at virtual capacity, and insistent demand from the automotive industry has sustained sheet and strip operations surprisingly well. Pipe production, however, continues to exceed demand. Standard pipe still is in fair demand, but new line pipe business is nil. Shipments have been practically completed against the 8500-ton order for 10- and 12-in. line pipe, placed by the Stanolind Pipe Line Co. with National Tube Co., Republic Steel Corp. and Youngstown Sheet & Tube Co. Oil country goods are dull.

Pig iron prices have firmed in sympathy with nominally stronger coal and coke quotations. The coal strike, however, failed to stimulate buying, as most consumers are covered well into third quarter for pig iron needs, and little imperative contracting is in prospect much before fourth quarter. Of particular interest to the pig iron trade is the provision in the iron and steel code which eliminates offering of off-grade iron at concessions under base prices for standard analysis iron.

Steel scrap shipments have naturally been sluggish in view of the uncertain steel mill operating schedules. Buying in the past two weeks has been restricted to small quantities. No. 1 steel, despite the light demand, has remained firm at the recently advanced level of \$13.75. Specialties are also strong. Virtually no market exists on coke. By-product foundry coke and furnace coke are practically impossible to procure, and asking prices consequently reflect sharply higher values.



# Rebound in Steel Output in Chicago District



**Ingot Rate Rises to 53 Per Cent—Pipe  
Line Order Calls for 11,500 Tons—Pig  
Iron Shipments Ahead of 1932 Total**

**C**HICAGO, Aug. 8.—Ingot output is up about one point to 53 per cent of capacity. This change follows two weeks of expanding business. Two weeks ago sales and specifications established a new peak for the year and the week just closed was the best in over two years.

An extension to a gas line in the Southwest calls for 11,500 tons of steel and the Burlington has awarded 4000 tons of rails to the Colorado mill. The United Fruit Co. has ordered 21 tank cars. Larger quantities of steel are moving to car plants and railroad car shops for general maintenance work.

All price structures are stationary. Quotations for August and September will not be disturbed until prices are announced for the fourth quarter. Prices for August, such as on coke, seem destined to be advanced for September delivery. Plates, shapes and bars are being quoted on a day-to-day basis and may eventually be influenced not only by the code but, in this district, by the move to drop the spread between Pittsburgh and Chicago.

Producers are beginning to become concerned about the labor supply, especially where previous experience in steel mills is important. Some point out that many workers have gone back to the farm and will not again return to industry. Certain mills are now employing full quotas of employees and have discontinued all aid work.

## Pig Iron

Shipments of Northern iron continue to gain, but the melt is slipping and consumers are building up stocks. Shipments so far this year are equal to the total for 1932 and new sales have far exceeded the total for last year. Stocks in the hands of producers are smaller but are still balanced.

## Reinforcing Bars

Important among new inquiries is 1075 tons of steel needed for road work in Wisconsin. Bids will be opened Aug. 15. Private work is practically at a standstill, but public work is beginning to get support from Government loans. The Milwaukee sewerage plant, requiring 3000 tons, seems destined to go ahead on Government funds. More Federal money is to be spent for dams on the upper

Mississippi River, but the season is growing late and probably little of the steel needed will be taken before next spring.

## Cast Iron Pipe

For the first time in several years pipe sellers are beginning to get orders for industrial repairs. Eau Claire, Wis., has selected the engineers for a new water works project, and Fond du Lac, Wis., will take bids on 7000 ft. of pipe on Aug. 17. It is expected that some cast iron pipe will be needed for new dam work to be undertaken on the upper Mississippi River. Prices are strong at \$43.40 to \$44.40 a ton for 6-in. and larger pipe, delivered at Chicago.

## Sheets

Mill operations, handicapped somewhat by summer weather, range from 60 to 65 per cent of capacity and deliveries have extended to four weeks on practically all products. Makers of beer barrels have had to go east for some of their sheet and strip needs because of the inability of local mills to meet delivery requirements. Automobile manufacturers have taken most of their August requirements and in the next week or 10 days will buy steel for September.

## Rails and Track Supplies

The Burlington has ordered 4000 tons of 110-lb. rails. In all other respects the rail market is quiet. Track bolts are now being quoted \$3.40, base, per 100 lb., with 25c. extra for heat treating. Demand for track accessories for general maintenance work is steady.

## Plates

A few scattered inquiries for small lots of oil and gas pipe are in the market. The oil industry in general is quiet and likely to remain so until an oil code is adopted. Some plate tonnage is going into railroad bridge work, the Missouri Pacific and the Burlington having placed orders in the last few days. Some new additional inquiries for beer tanks are before the trade. Efforts to finance new brewery projects by stock selling schemes may be blocked in this State by statutory restrictions. Consumption of steel by railroad shops and car plants is still increasing. Western railroads are scrapping many cars and locomotives. The Union Pacific is men-

tioned as a possible purchaser of 5000 cars.

## Structural Material

Awards, at about 1500 tons, are light. Fresh inquiries total about 2000 tons, over half of which is for State bridge work. The American Bridge Co. is low on the Justice Park, Ill., viaduct, and McClintic-Marshall Corp. is low bidder on the bridge at Morris, Ill.

## Wire Products

August orders are running close to the average for July, which was an unusual month, particularly when the time of year is taken into account. There is still rather insistent pressure for deliveries and mill operations hold at 55 per cent of capacity. Demand from refrigerator manufacturers is showing a seasonal decline, but releases from automobile manufacturers are in steady volume. Business in farm areas is slow, although it is expected to revive in the fall. Investigation discloses that many wire mill workers who have taken up farm work are not likely to return to industrial life.

## Bars

Mills look for a smaller demand for bars from automobile manufacturers, but such a recession may be offset by increased business now coming from railroad shops. Bar orders are being taken on a day-to-day basis, pending the acceptance of the steel code. Some local interests have proposed that prices for bars, and plates and shapes as well, be quoted at the same base price as at Pittsburgh to large consumers and \$2 a ton higher to the general run of users. Others are for wiping out the differential over the Pittsburgh price on all business. No move one way or the other is likely to be made until the steel code has gone into effect.

## Coke

Local ovens continue to quote \$7.50 for delivery in August. Trouble in the coal fields is a spur to shipments of coke, which foundries are putting on the ground. Deliveries are considerably extended, but new ovens will be changed over to foundry coke and this situation is expected to be remedied in the near future.

## Scrap

Close to 20,000 tons of heavy-melting steel has been purchased by mills at prices that range from \$10.50 to \$10.75. Dealers are paying \$10.25 to cover sales at 25c. a ton higher, and their new offers to mills are at \$11 a ton. Most of the quick scrap has been taken out of the market, but there is a large amount of wrecked car and locomotive material hanging over the market, and this is holding prices in check. Dealers believe that the scrap code is certain to raise costs of preparing material and their present concern is how much of the extra cost can be passed on to consumers.

# Steel Demand Still Active in Eastern Pennsylvania



**General Business Tapers Off Slightly, But 35,200 Tons of Steel Is Placed for Navy Vessels — Steel Scrap Is Stronger**

**P**HILADELPHIA, Aug. 8.—While most mills report a slight tapering off in new business, demand is holding up well for this season of the year. Some makers of well-diversified lines, however, are receiving miscellaneous tonnages that indicate better business in August than in July, which was one of the best months of the year. On the whole the let-up in demand is in plates, shapes and bars, due to the fact that consumers covered before the lower levels expired on July 31. The new prices of 1.70c., Coatesville, on plates, 1.70c., Bethlehem, on shapes, and 1.60c., Pittsburgh, on steel bars, however, have not deterred new buying and one maker has taken a fair tonnage at the new levels. A nearby mill today started one large and two small structural mills.

Sheet demand is also holding up well, especially from automotive body builders, though occasionally mills report a slowing up in commercial grades. Awards of approximately 35,200 tons of plates and shapes have already been made by two shipbuilders for two aircraft carriers, two cruisers and four destroyers for the Navy. Of the steel requirements, about 32,000 tons went to the Bethlehem Steel Co. and 3200 tons to the Carnegie Steel Co.

One open-hearth furnace in this district has been taken off the active list, leaving operations at about 46 per cent of capacity.

Operations of steel plants under the 8-hr. day, 40-hr. week have increased costs perceptibly and have already necessitated increased shifts.

## Pig Iron

Inquiries are confined chiefly to carlots. Indications are that shipments in August, however, will be close to those of July, when some furnaces sold more tonnage than in any month since 1929. Prices are firm.

## Plates, Shapes and Bars

The Newport News Shipbuilding & Dry Dock Co., Newport News, Va., has awarded steel contracts for two aircraft carriers to the Bethlehem Steel Co., and the New York Shipbuilding Corp., New York, has awarded steel requirements for two light cruisers to the Bethlehem company, while it awarded steel for four destroyers to the Carnegie Steel Co.

The two aircraft carriers will require about 12,000 tons of plates and 6000 tons of shapes. The two cruisers involve approximately 9250 tons of plates and 4750 tons of shapes. The four destroyers will take about 2100 tons of plates and 1100 tons of shapes. These eight vessels are a portion of the 21 ships of the Naval program awarded last week to private yards.

Steel for the others is expected to be awarded soon. They include two destroyers each, which went to the Bath Iron Works, the Federal Shipbuilding Co., and the United Dry Docks Co., one heavy cruiser and four destroyers, which were awarded the Bethlehem Shipbuilding Corp., and two submarines, which were awarded to the Electric Boat Co.

While most makers report a drop in new business for plates, shapes and bars, some have received increased tonnages of plates for miscellaneous requirements. One fabricator is asking bids on 1200 tons of heavy plates for drum plates for Madden Dam, Panama Canal. Tenders are to be in by Aug. 10. The steel bids are being asked preparatory to bids to be submitted by fabricators to the Panama Canal for construction of the gates. The Baltimore & Ohio is asking bids of car builders for a fair-sized lot of car parts. Bids were received today for 850 tons of reinforcing bars by the Arundel Corp., Baltimore, for the Pennsylvania Railroad's new union tunnel in that city.

## Sheets

Demand for automotive sheets is holding up well. Deliveries of this grade are being made in four to six weeks. On other grades, business has fallen off and deliveries are promised in two to three weeks. Prices are being well maintained. Makers generally are quoting through the remainder of the third quarter. Most contracts carry a protection clause against increased costs that may arise under the steel code.

## Warehouse Business

Demand is only fair. Prices are unchanged.

## Imports

The following iron and steel imports were received here last week: 3800 tons of manganese ore from

Cuba; 100 tons of sponge iron, 9 tons of steel bars and 5 tons of steel tubes from Sweden.

## Scrap

Several sales of No. 1 heavy melting steel have been made at \$12, delivered. While the market remains strong, mills generally are delaying purchases pending possible readjustment under the scrap code, which has been filed with the National Recovery Administration at Washington.

## Blast Furnace Added at Buffalo

**B**UFFALO, Aug. 8.—Addition of a stack of the Hanna Furnace Corp. brings the total number of blast furnaces operating in this vicinity to seven. Inquiry for pig iron is confined to carload lots and slightly larger tonnages.

Active open-hearths at the Lackawanna plant of the Bethlehem Steel Corp. have been decreased to 11 from 12, but Republic Steel Corp. added one, giving it eight active furnaces. Wickwire Spencer Corp. continues to operate two, and the Seneca sheet division of Bethlehem is operating at 70 to 75 per cent of capacity. Bids are to be taken Aug. 11 on 1200 tons of structural steel for State bridges.

In the scrap market, a few sales of No. 1 machinery cast have been made, the most noteworthy being one of 300 tons and another of about 500 tons, at a minimum price of \$12. Few new sales have been made, but shipments are being made steadily on old orders.

## Production Declines in Birmingham District

**B**IRMINGHAM, Aug. 8.—On last Thursday, Republic Steel Corp. blew in No. 1 furnace, increasing the number of active blast furnaces in the district to ten. This week there will be a reduction of both blast furnace and open-hearth operations. The Tennessee Coal, Iron & Railroad Co. closed its Ensley rail mill Saturday for an indefinite period. This mill had operated since July 10. The two Ensley blast furnaces are to be banked today or tomorrow and the five Ensley open-hearths will be shut down at the same time. This will leave eight active blast furnaces, the Tennessee company continuing its two Fairfield stacks and the three merchant producers, Woodward, Sloss-Sheffield and Republic, also having two each.

Pig iron shipments so far this month have held close to the July rate, which for two companies was



the best in nearly two years. Current sales are light, on account of previous bookings, and the price of \$13 is firm.

#### Steel

Buying of light products is fair, but not up to the June and early July rate. Tonnage in heavy products is irregular and restricted. Shipments will be steady most of the month, as there was a late rush of specifications against second quarter contracts.

Eighteen open-hearths were worked last week, eight at Fairfield, five at Ensley and five at Alabama City. With the closing of the Ensley open-hearth plant this week, there will be a reduction to 13, returning ingot production to the point it was before the opening of the rail mill the early part of July.

### Scrap Sales Heavy in Detroit

**D**ETROIT, Aug. 9.—With fairly comfortable stocks of scrap on hand, the local steel plant is doing little buying except of small bargain lots. Despite the tapering in demand from all classes of consumers, lists of scrap sold by automobile companies the past week brought the highest prices in months. Cast iron grades are showing strength. Long turnings and No. 1 machinery cast are up 25c. a ton and stove plate 50c. A Lorain, Ohio, steel company has recently purchased about 30,000 tons of scrap, which is now being taken in by water from Detroit and from one of the Upper Lake Ports.

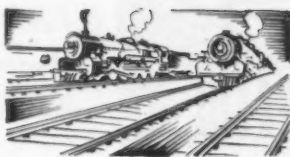
### Gradual Pick-Up in Canadian Output

**T**ORONTO, ONT., Aug. 8.—Steel output is gradually picking up because of large orders booked a short time ago, but current demand for finished and semi-finished products is in small tonnage lots. The automotive industry and the mining industry are furnishing a steady demand for steel products and equipment, while other branches are listless. Orders for approximately 10,000 tons of structural steel are pending in connection with bridge and building construction in Quebec, but otherwise there is little indication of betterment in this branch of industry.

Pig iron buying is on a hand-to-mouth basis. Four blast furnaces are active in Canada, principally on basic iron. Competition from American producers is negligible. Prices are firm and unchanged.

Scrap prices are firm at recently revised levels. Demand is spotty, with orders entirely for immediate delivery. Steel scrap is moving at a steady rate on export account, but is not in demand for domestic consumption.

## Production Drops Two Points in Cleveland District



**Rate Now 67 Per Cent—Pig Iron Shipments Exceed Those of July—Detroit Base on Bars Reestablished**

**C**LEVELAND, Aug. 8.—Although shipments of steel to consumers thus far this month are equal in volume to those in July and may surpass the July total before the month is out, new orders and specifications have contracted somewhat. The decline in bookings is attributed to a natural reaction following the placing of sizable tonnages in the final few days of last month and to hesitancy on the part of users until the confusion surrounding the N. R. A. program is dissipated. The fear of a fuel shortage still hanging over industry is a factor contributing to the decision of consumers to move slowly for the moment.

Ingot operations in the Cleveland-Lorain district have dropped two points to 67 per cent, owing to the fact that the National Tube Co. has taken off one open-hearth furnace.

The Corrigan, McKinney Steel Co. has put into effect lump sum quantity extras on small mill shipments of steel bars as follows: 4000 to 6000 lb., \$2; 2000 to 4000 lb., \$4; 1000 to 2000 lb., \$8; under 1000 lb., \$12. It is understood that other makers of bars and likewise manufacturers of structural shapes and plates have this schedule under consideration and are likely to adopt it at an early date. Its effect, of course, is to discourage buyers from placing small orders with the mills and to throw this business into the hands of warehouses.

The Nickel Plate has given releases against an old order for 3000 tons of 110-lb. steel rails. The Erie railroad is proceeding with a car repair program which is taking a moderate tonnage of steel in the aggregate. Incoming business in wire products has been remarkably good, holding at the rate which prevailed late in July. Deliveries have lengthened and some items cannot be secured in less than two to three weeks. No awards are expected for at least a few days on the 24,000 tons of cast iron pipe, 2500 tons of welded steel pipe and 1050 tons of fittings required for 36 miles of water mains for the city of Cleveland.

Steel bar makers are quoting 1.80c., delivered Detroit, and 1.85c., delivered to Michigan points outside De-

troit, on business extending over the remainder of the third quarter. This reestablishes at least for the present the practice of making Detroit a basing point for steel bars, although the steel code abolishes it. It is not known whether the steel code is likely to be changed to permit the continuation of this practice or whether the present method of quoting bars is a temporary expedient.

#### Pig Iron

A large furnace interest reports shipments running about 25 per cent ahead of the corresponding period in July and is confident of maintaining this rate of gain throughout the month. Most users are covered for the remainder of the present quarter and producers are not yet ready to quote for the fourth quarter. In fact, the pig iron code does not permit them to quote more than 30 days in advance of the opening of a quarter. This situation naturally has had a stifling effect on fresh buying. Consumers making domestic heating equipment are giving the largest releases in several years. Prices are firm at \$16.50, Cleveland, and \$17, Toledo or Detroit.

#### Iron Ore

Shipments from upper Lake ports during July totaled 3,430,785 tons, compared with 639,884 tons in the corresponding month of 1932. This represents a gain of 2,790,901 tons, or 436 per cent. For the first seven months of the current year, shipments amounted to 5,695,798 tons, as against 1,028,340 tons in the corresponding period a year ago.

#### Warehouse Business

Local jobbers have increased prices on cold-finished steel bars to conform to the advance of \$5 per ton recently made by mills. Rounds, squares and hexagons are now quoted at 3.25c., and cold-drawn flats at 3.40c.

#### Bars, Plates and Shapes

Heavy bookings of steel bars prior to the price advance at the end of July have been followed by a period of light buying. However, in some cases mill shipments this month promise to exceed those in July. Struc-

tural steel work continues to lag. In plates the chief feature is the amount of business originating in the brewing industry. Bars are quoted at 1.65c., Cleveland, and structural shapes and plates at 1.60c.

#### Sheets

Fresh specifications have been of fairly good volume, although somewhat below the level maintained during July. Although automotive parts makers are still the heaviest users of sheets, the tonnage is exceptionally well diversified. One important sheet manufacturer is operating its mills practically at full capacity. Automobile body sheets are the only weak item, and they are gaining rapidly in strength.

#### Scrap

Mills which a week ago requested temporary suspension of shipments are again taking scrap on current contracts. However, little fresh buying is expected until users ascertain what effect the establishment of codes and the application of the entire Recovery Act are going to have on industry. In view of the present lull in the market, prices have remained unusually firm.

### Sheet Demand Sustained in Cincinnati District

CINCINNATI, Aug. 8.—The pig iron market has been quiet, the past week, new business having been confined to about 300 tons to cover urgent needs of consumers. Most melters are covered for the remainder of the quarter and in some instances even beyond. Southern furnaces have revised quotations to absorb freight surcharges, bringing the new quotations for delivery in Cincinnati to \$17.73 and reducing the price advantage over Northern furnaces to about 38c. Shipments against contracts increased about 15 per cent in July over June, releases for this month indicate no reduction for August.

Birmingham by-product coke, for delivery in Cincinnati, has been advanced 50c. to place it on a parity with Northern oven quotations. The price is \$8.53, Cincinnati.

#### Steel

Continued heavy ordering from automobile manufacturers is largely responsible for the steady sheet mill operations, which remain at slightly less than 70 per cent of capacity. Price resistance is virtually nonexistent.

#### Scrap

The market is in strong position, but trading is infrequent. Supplies of material are still "frozen," since yard interests look for higher prices. The Norfolk & Western and the Chesapeake & Ohio are offering their usual lists, bids to close this week.

## Steel Releases in Smaller Volume at New York



Passing of July 31 "Deadline" Puts Prices Under Test—Navy Steel Being Placed—Railroad Shop Operations Improve

NEW YORK, Aug. 8.—The Navy Department has awarded contracts to private yards for 21 vessels, as detailed elsewhere, and some of the steel required has already been placed. Steel will also be bought soon for the 16 vessels which are to be built in United States Navy yards. For two submarines bids will be taken by the Navy Department today, and schedules will be issued shortly for the opening of bids on the steel required for the 14 remaining ships.

Generally, demand for heavy rolled products has subsided following the rush to specify before July 31. At the moment, the new prices, which represent an advance on all items for larger buyers, are being tested. Firmness on the part of the mills is matched by unwillingness on the part of users to become reconciled to the abandonment of preferential quotations. Buyers continue to press for concessions on the grounds that the single-price policy does not become obligatory until the code is officially adopted.

Railroads were among those who placed rather liberal orders for bars, plates and shapes in the final week of July. Two leading Eastern lines are increasing their shop operations, one of them having placed 3000 tons of steel for repair work in its own shops. A telegram sent by Federal Coordinator Eastman to all Class 1 roads urging that they give special consideration to deferred maintenance work is expected to have good results. An Eastern line may place an additional rail order before the close of the current month.

Construction work is at a low ebb, and action on Federal work is being held up because contractors cannot submit firm bids until several of the more important codes have been adjusted.

Better demand for steel from anthracite mines is reported. Lower freight rates on anthracite have caused Pennsylvania operators to increase their production in anticipation of recovering markets in New England and elsewhere which were lost to substitute fuels some years ago.

A number of mills have adopted new quantity extras on bars for lots

of less than 3 tons, and revised extras on semi-finished steel have been announced.

#### Pig Iron

Foundry melt has improved. Current sales are in small volume, but a healthy market condition is indicated by the acceleration of foundry releases against contracts. Fresh buying is spotty and mostly confined to small fill-in orders from small foundries, although a few recently placed tonnages call for deliveries until the end of the quarter. Sales for the week totaled 2600 tons, compared with 3400 tons in the preceding seven-day period and 2500 tons a fortnight ago. Present inability of consumers to cover for fourth quarter presages renewed buying when furnaces open their books for that period. Sellers continue to await final adoption of the iron and steel code before taking action on fourth quarter prices. Import brands are moving in well sustained volume.

#### Reinforcing Bars

Small public jobs are virtually the sole support of the local market. Private construction is negligible. Prices are quotably firm for the small lots being placed. Current bookings are impeded by the refusal of mills to make firm quotations on projects now on drafting boards. Major lettings for the week aggregated only 250 tons. Pending requirements are heavier. Arundel Corp'n. will award 850 tons, required by a railroad tunnel at Baltimore, within the week. A sizable tonnage of mesh and bars for the initial New York highway improvements will be parceled out to various sellers on Friday.

#### Scrap

Expected weakness in prices has failed to appear, and prevailing quotations are unchanged and firm. Consumers are actively taking metal. Both buyers and sellers welcome the passing of the marked buoyancy that characterized the market a fortnight ago, and feel that the present more stable status provides a more satisfactory basis for trading. Nevertheless all interests are refraining from making extended forward commitments until the



industrial outlook clears up. On the strength of moderate movements during the past two weeks, heavy-melting yard steel has leveled off at \$4.50 a ton, barge. Foreign inquiry is heavy and diversified, but exporters are exhibiting no general inclination to better domestic bids.

## Scrap Supplies Depleted in New England

**B**OSTON, Aug. 8.—No open inquiries for pig iron are in the market, but it is intimated that a Massachusetts machinery maker will shortly require 500 tons. Furnace representatives are adhering strictly to listed prices.

The flurry in scrap prices has subsided, and the market is holding firm on its former price level. Business is still restricted because of the disposition to hold scrap for higher prices. Supplies of textile and No. 1 machinery cast are said to have been reduced 75 per cent during the past two months or so, because of shipments to the Pittsburgh district, as well as to New England consumers. The floating supply of No. 1 heavy melting steel also is small. Supplies of turnings, however, are increasing, due to greater activity in the metal-working industry.

Cast iron pipe prices are holding up well. On an inquiry from Providence, R. I., for 12,000 ft. of 12-in. pipe, the United States Pipe & Foundry Co. bid \$39 a ton for rail shipment and \$37 a ton for barge shipment. R. D. Wood & Co. bid \$39.59 for rail shipment and \$1.50 a ton less for barge shipment.

## Reinforcing Steel

### Awards 600 Tons—New Projects 11,575 Tons

**Barkhamsted, Conn.**, 150 tons, stream control for Farmington River dam, to Concrete Steel Co.

**Queens County, N. Y.**, 100 tons, highway at Grand Central Parkway, to Concrete Steel Co.

**Big Springs, Tex.**, 150 tons, post office, to Connors Steel Co.

**Seattle**, 200 tons, brewery, to Isaacson Iron Works.

### NEW REINFORCING BAR PROJECTS

**Williamstown, Mass.**, 190 tons, State road.  
**Baltimore**, 850 tons, Pennsylvania Railroad tunnel; announcement this week by Arundel Corp., Baltimore.

**Oberlin, La.**, 1575 tons, dam and irrigation project for Louisiana Power Corp.

**State of Wisconsin**, 1075 tons, highway work; bids Aug. 15.

**State of Illinois**, 200 tons, county road work; bids opened Aug. 7, 8 and 9.

**Denver**, 4300 tons for Boulder Dam, Bureau of Reclamation Specification No. A-3268, 9 and 70-A; bids under advisement.

**Seattle**, 200 tons, Continental Can Co. factory, general contract awarded.

**Los Angeles**, 1108 tons, Bureau of Water and Power, material for transmission line, Soule Steel Co. and Blue Diamond Corp. low bidders.

**Los Angeles**, 1000 tons, White Point outfall sewer.

**Los Angeles County, Cal.**, 875 tons, storm drain; bids soon.

## Scotch Mills Active British Prices Unchanged

**L**ONDON, ENGLAND, Aug. 8 (*By Cable*).—Despite the holidays, British pig-iron interests are cheerful concerning the outlook, being encouraged by the broadening export demand. British rolling mill production has been more affected than pig-iron by the holidays, but Scotch mills are resuming operations under more favorable conditions than they have experienced for years. The continued inactivity of the shipyards is disappointing, although the outlook for the autumn is more hopeful.

Tin plate business continues dull, but makers report satisfactory bookings and an expectation that a new buying movement may advance prices.

Sales of steel to the Continent were restricted by the holidays and also by the uncertainties following the reorganization of the Continental trade. Hamburg steel merchants fear virtual extinction through the cartel policy.

Cartel prices have not been officially reduced to England, but are appar-

ently being shaded to meet local competitive conditions. Differences of opinion between the cartel and the British steel merchants are unlikely to be settled immediately since the cartel committee is on vacation until September.

The proposed Belgo-German mutual territorial protection agreement is meeting opposition from some Belgian mills. It is reported that the proposed international thin sheet cartel has made further progress. International Wire Export Co. is raising prices, following the American example.

It is expected that the French pig-iron syndicate will soon be formed as preliminary to an international syndicate.

Russia is endeavoring to arrange a barter contract with Poland involving 100,000 tons of Polish steel.

Both British and Continental gold prices remain unchanged this week.

## Advances in Scrap at St. Louis

**S**T. LOUIS, Aug. 8.—A survey of the foundry trade in the St. Louis territory reveals that the melt is much heavier even than it was two weeks ago. Shipments against contracts are moving at the same high rate that has prevailed for some time. Sales are confined to lots of special analyses to fill in, melters being covered on their third quarter requirements, and makers decline to accept business for fourth quarter. The market is firm at unchanged prices.

### Steel

The market for finished steel is quiet so far as mills are concerned. The trade bought heavily in June for July shipment, and it has settled down to await the sale of its products, as well as the effects of the code for the industry, before making further commitments. Prices are firm.

### Scrap

Railroad springs, cast iron borings and shoveling turnings, machine shop turnings, wrought iron bars and transoms, No. 1 railroad wrought, railroad malleable and No. 1 railroad cast are up 50c. a ton, heavy turnings are 75c. a ton higher, and No. 1 busheling is \$1.25 a ton up. There were no sales of consequence during the week. Railroad lists: Missouri Pacific, 125 carloads; Nashville, Chattanooga & St. Louis, 15 carloads.

### British Prices, f.o.b. United Kingdom Ports

Per Gross Ton			
Ferromanganese, export	£9		
Billets, open-hearth	£5	to	£5 7s. 6d.
Black sheets, Japanese specifications	£11		
Tin plate, per base box	16s.	9d. to	17s. 3d.
Steel bars, open-hearth	£7 17½s.	to	£8 7½s.
Beams, open-hearth	£7 7½s.	to	£7 17½s.
Channels, open-hearth	£7 12½s.	to	£8 2½s.
Angles, open-hearth	£7 7½s.	to	£7 17½s.
Black sheets, No. 24 gage	£9		
Galvanized sheets, No. 24 gage	£11	to	£11 10s.

### Continental Prices, f.o.b. Continental Ports

Per Metric Ton, Gold £ at \$4.86	
*Ingots	£2 5s.
*Billets, Thomas	£2 7s.
Wire rods, No. 5 B.W.G.	£4 10s.
Black sheets, No. 31 gage, Japanese	£11 5s.
*Steel bars, merchant	£3
*Sheet bars	£2 8s.
Plates, ¼ in. and up	£3 18s. 6d.
*Plates, ½ in. and 5 mm.	£4 1s.
*Sheets, ½ in.	£4 6s.
*Ship plates	£4 10s.
*Beams, Thomas	£2 16s. 6d.
*Angles (basis)	£3
Hoops and strip steel over 6-in. base	£3 15s.
Wire, plain, No. 8	£5 7s. 6d.
Wire nails	£5 15s.
Wire, barbed, 4-pt. No. 10 B.W.G.	£8 15s.

\*Prices as established by European Raw Steel Cartel.

## Various Branches of Foundry Industry Cooperate to Work Out Code Problems

**C**OOPERATIVE action on the part of the entire foundry industry in working out its problems under the National Industrial Recovery Act was assured at a meeting the past week in Cleveland of the gray iron, steel, malleable and non-ferrous branches of the industry.

The meeting was called on the invitation of Walter L. Seelbach, Forest City Foundries Co., Cleveland, president of the steering committee of the gray iron foundry industry. A founders' council, consisting of representatives from the industry's various trade associations, was established to adjust differences between various branches of the industry.

At a meeting of malleable castings makers, the Malleable Founders' Society was formed and given authority to represent the malleable industry in the recovery program. A code embodying minimum hours of labor and a variable scale of wages was adopted and shortly will be submitted to Washington.

The Gray Iron Institute has completed a tentative code for the gray iron industry, which is being sent out to all members this week.

### Machine Tool Dealers Complete Draft of Code

**T**HE National Industrial Recovery Administration committee of the Associated Machine Tool Dealers, and not of the National Machine Tool Builders' Association as reported in THE IRON AGE last week, has completed the preliminary draft of a code of fair competition for machine tool distributors. Copies of the proposed code have been mailed to members of the dealers' organization for their consideration.

### Working on Large Order for Concrete Mixers

**T**HE Chain Belt Co., Milwaukee, is building 21 Rex Moto-Mixers, 28 Rex-Stearns belt conveyors and one Rex super-size mixer for shipment to the site of the San Francisco-Oakland Bay Bridge project. This order is said to be the largest for concrete mixing machinery placed in the United States since the construction of the Panama Canal.

Of 3½-yd. capacity, the motor-driven Moto-Mixers will be mounted, if possible, in a fleet of barges in groups of two or four. There will be seven complete barge plants, each

carrying enough aggregate to provide the mixers with material for 20 to 40 batches each, according to whether two or four units are employed for the mixing. Each barge has 80 compartments for the aggregate and each will be equipped with a complete belt conveying system, consisting of four Rex-Stearns belt conveyors to carry aggregate from the bins to the mixers and the concrete from the mixers in the hull to the decks of the barges, and hence to the point of placement.

### Waste Material Code Progressing

**N**ATIONAL Association of Waste Material Dealers, Inc., in session at the Hotel Sherman, Chicago, held its opening sessions on Aug. 7, with the attendance close to 500, covering every section of the United States. The entire three days of the convention will be devoted to completing and approving a code for all branches of the waste material industry. The waste material industry, according to Charles M. Haskins, managing director of the above association, employs over 500,000 persons and does a yearly business of over a billion dollars. At the close of the first day's session it had been definitely determined that only one code would be submitted embracing all branches of the secondary materials industry. Available information indicates that minimum wage and maximum hour schedules to be adopted for the whole industry will furnish employment to at least an additional 100,000 persons.

### Warehouse Prices Up on Coast

**S**AN FRANCISCO, Aug. 7.—Warehouse prices have been advanced \$4 per ton. The increase resulted largely from higher operating costs growing out of compliance with the N.R.A. code. Warehouse business is reported to be more active than at any time in the last three years. The mill price on plates is now firm at 2.10c. a lb., c.i.f. coast ports. The movement of steel in southern California continues to exceed that of corresponding months during the last two years, although the market in northern California and in the Pacific northwest is somewhat less active.

Steel awards for the week were few, with but 280 tons of structural steel and 200 tons of concrete bars reported. New inquiries call for 1061 tons of shapes and 6890 tons of rein-

forcing steel. However, some of the reinforcing projects are still in the preliminary stage. At Seattle the United States Pipe & Foundry Co. took 1110 tons of cast iron pipe for the Denny Way line. Oakland, Cal., is to take bids on 1853 to 2094 tons of 4 to 8-in. cast iron pipe. A permit has been granted for a 152-mile natural gas line in King and Fresno counties, which will require approximately 2800 tons of welded pipe.

### Carboloy Raises Factory Wages

**C**ARBOLLOY CO., INC., Detroit, manufacturer of cemented carbide tools, has announced a 15 per cent wage increase for all hourly employees, effective Aug. 1, 1933. The company has also signed the blanket or general code recently issued under the National Recovery Act.

The increase was not necessary to bring the wage level up to the minimum established by the N. R. A. emergency code, it was stated, but was made as material evidence of the Carboloy Co.'s full cooperation with President Roosevelt's recovery program.

### Link-Belt System Removes Dust from Coal

**L**INK-BELT CO., 300 West Pershing Road, Chicago, has acquired patent rights for the manufacture and sale in the United States of the Simon-Carves dust extraction and collection system. Approximately 20 installations of the system have been made in England and the British coal fields. Raw coal flows from a bin on to a shaking screen. Air is blown from a fan through a duct leading up through the screen. Dust thus blown out of the coal is carried through the top duct to a cyclone, where it settles and is taken out through a dust chute at bottom. Large coal passes over the screen and is delivered by chute into a wash box or storage bin, as desired. Dust is entirely blown out of the system without passing through the fan. The cyclone is only 4½ ft. in diameter, so that the system takes little room.

Ore shipments from Marquette, Mich., docks so far in 1933 have totaled 703,350 tons compared with a total tonnage for the 1932 season of 314,767 tons.

Eighteen scrap iron yard dealers, almost all of the yard dealers in Buffalo, agreed, at a meeting held Aug. 4, to sign the yard dealers' code of a 44-hr. week and a minimum of 37½c. an hour.



# All Metals Remain Unchanged As Codification Progresses

**Tin Drops to 44.60c. on Sterling Strength—Copper  
Remains Firm at 9c.—Zinc Position Improves**

**N**EW YORK, Aug. 8.—Although consumer demand continues in greatly reduced volume, electrolytic copper is quotably unchanged and firm at 9c. a lb., delivered Connecticut Valley points. Fresh buying is spotty and light. December inquiries are generally being ignored, although consumers are encountering no difficulty in securing metal at 9c. Resale metal has disappeared and second hands are awaiting code announcement before making offerings. The copper code is expected to be presented today, and stronger quotations are generally expected upon its acceptance. Fabricating activity is well maintained, and many of the larger consumers are anticipating deliveries. Although excessive stocks are hanging over the market, producers retain a tight grip on offerings. The statistical position will be further improved by the July reduction in stocks which will probably exceed that of June. Foreign offerings started the seven-

day period at 8.55c. a lb., c.i.f. usual Continental ports, but only negligible movements were made at that figure. Little metal was moved at today's quotation of 8.35c. Since copper prices have now entered the range where African interests can profitably compete, there is every likelihood of their starting production. This flow of metal is expected to force European quotations to a lower level.

## Tin

A thin exchange situation, with consequent hourly price shifts in tin, continues to discourage active buying interest. In addition, the tendency of pound sterling to strengthen, during the week, presages even lower domestic quotations, and consumers are therefore withholding purchases. Importers were inactive the past seven-day period. Spot Straits opened at 44.95c. a lb. last Wednesday, steadily weakened to a 44.50c. level yesterday, but rebounded on today's ster-

ling strength to a nominal 44.60c. quotation. The heavy purchases of late June are being rapidly consumed by automobile and tin plate interests, although many of the smaller fabricators are at present in an overbought position. Since sales volume of the past three weeks has been negligible, although production is sustained, a depletion of plant stocks has occurred. Consequently a potential demand has been built up. Official pool communiqués are deliberately obscure, but tonnage released to date is estimated at 4500 tons. This liquidation, judiciously performed, has had no effect on the price structure, as evidenced by the firm tone of the London market. Sales in Europe were light during the week. Postings today in London are £214 10s. for spot standard, £214 12s. 6d. for future standard and £219 10s. for spot Straits. Offerings were made in Singapore at £220 5s.

## Lead

With the London market easing downward, domestic consumers remain inactive, since their immediate requirements are well covered. No price softness is expected and quotations hold firmly at 4.50c. a lb., New York, and 4.35c., St. Louis. Contract releases are very satisfactory. The current market is featureless, and bookings are limited to small consumers taking small lots of spot metal. The carry-over from an overbought July position has resulted in a well covered August. Estimated September requirements are less than 25 per cent covered.

## Zinc

Scattered efforts of consumers to break price levels has had no effect on the local market, and first hands in Prime Western are firmly holding quotations at 5.37c. a lb., New York, or 5c., East St. Louis. Releases continue in heavy volume. Fresh purchasing has declined during the past week, and current buying is limited chiefly to car lots of spot metal. Smelters are now covering the October requirements of buyers and are taking limited November tonnage at 5c. Sellers are not inclined to dip into stored stocks and sales are generally confined to current production. A price change on the upward side is expected, with producers generally favoring 5.25c. to 5.35c. metal. The market tone was unaffected by the presentation of the zinc code, but it was sharply stimulated when a greatly improved statistical position became known. Prime Western stocks declined 11,700 tons during July, and high-grade metal decreased 3000 tons. Joplin ore is firmly entrenched at \$35 a ton, with no weakness evidenced. Mines booked 4450 tons of ore last week, and shipments totaled 6950 tons. Production dropped 700 tons to 4300 tons during the same period, and visible stocks are currently estimated at 10,225 tons.

## The Week's Prices. Cents Per Pound for Early Delivery

	Aug. 2	Aug. 3	Aug. 4	Aug. 5	Aug. 7	Aug. 8
Electrolytic copper, N. Y.*.....	8.75	8.75	8.75	8.75	8.75	8.75
Lake copper, New York.....	9.00	9.00	9.00	9.00	9.00	9.00
Straits tin, Spot, N. Y.....	44.95	44.90	44.80	....	44.50	44.60
Zinc, East St. Louis.....	5.00	5.00	5.00	5.00	5.00	5.00
Zinc, New York.....	5.37	5.37	5.37	5.37	5.37	5.37
Lead, St. Louis.....	4.35	4.35	4.35	4.35	4.35	4.35
Lead, New York.....	4.50	4.50	4.50	4.50	4.50	4.50

\*Refinery quotations; price ¼c. higher delivered in Connecticut.

Aluminum, 98 to 99 per cent pure, 22.90c. a lb., delivered.

Nickel electrolytic cathode, 35c. a lb., delivered; shot and ingot, 36c. a lb., delivered.

Antimony, 7.25c. a lb., New York.

Brass ingots, 85-5-5-5, 9c. a lb., New York and Philadelphia.

## From New York Warehouse

### Delivered Prices, Base per Lb.

Tin, Straits pig.....	46.00c. to 48.00c.
Tin, bar.....	48.00c. to 50.00c.
Copper, Lake.....	10.50c. to 11.25c.
Copper, electrolytic.....	10.25c. to 10.75c.
Copper, castings.....	10.00c. to 11.00c.
*Copper sheets, hot-rolled.....	16.12½c.
*High brass sheets.....	14.75c.
*Seamless brass tubes.....	16.37½c.
*Seamless copper tubes.....	16.62½c.
*Brass rods.....	12.25c.
Zinc slabs.....	6.25c. to 7.25c.
Zinc sheets (No. 9), casks.....	9.75c. to 10.00c.
Lead, American pig.....	5.50c. to 6.50c.
Lead, bar.....	7.00c. to 8.00c.
Lead, sheets.....	8.25c.
Antimony, Asiatic.....	8.50c. to 9.50c.
Alum., virgin, 99 per cent plus.....	23.30c.
Alum. No. 1 for remelt-ing, 98 to 99 per cent.....	18.00c. to 19.00c.
Solder, ½ and ¼.....	30.00c. to 31.00c.
Babbitt metal commercial grade.....	25.00c. to 50.00c.

\*These prices are also for delivery from Chicago and Cleveland warehouses.

## From Cleveland Warehouse

### Delivered Prices per Lb.

Tin, Straits pig.....	49.50c.
Tin, bar.....	51.50c.

Copper, Lake.....	10.25c.
Copper, electrolytic.....	10.25c.
Copper, casting.....	10.00c.
Zinc, slab.....	5.75c. to 6.00c.
Lead, American pig.....	5.35½c. to 5.50c.
Lead, bar.....	8.50c.
Antimony, Asiatic.....	9.00c.
Babbitt metal, medium grade.....	19.00c.
Babbitt metal, high grade.....	53.50c.
Solder, ½ and ¼.....	27.50c.

## Old Metals, Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators, and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible..	7.00c.	8.00c.
Copper, hvy. and wire.	6.75c.	7.75c.
Copper, light and bottoms.....	5.75c.	6.25c.
Brass, heavy.....	3.75c.	4.50c.
Brass, light.....	3.50c.	3.75c.
Hvy. machine composition.....	5.25c.	6.00c.
No. 1 yel. brass turnings.....	5.00c.	5.625c.
No. 1 red brass or compos. turnings...	5.00c.	5.50c.
Lead, heavy.....	3.625c.	4.00c.
Zinc.....	2.75c.	3.25c.
Cast aluminum.....	7.50c.	8.75c.
Sheet aluminum.....	12.00c.	13.50c.

# Prices of Finished and Semi-Finished Steel, Coke, Coal, Cast Iron Pipe

## BARS, PLATES, SHAPES

### Iron and Steel Bars

Soft Steel	
	Base per Lb.
F.o.b. Pittsburgh mill	1.60c.
F.o.b. Chicago	1.70c.
Del'd Philadelphia	1.91c.
Del'd New York	1.95c.
Del'd Detroit	1.80c.
F.o.b. Cleveland	1.65c.
F.o.b. Lackawanna	1.70c.
F.o.b. Birmingham	1.75c.
C.I.F. Pacific ports	2.10c.

### Billet Steel Reinforcing

(Cut lengths as quoted by distributors)	
F.o.b. P'gh mills	1.75c.
F.o.b. Birmingham	1.75c.
F.o.b. Cleveland	1.75c. to 1.90c.

### Rail Steel

F.o.b. mills, east of Chicago dist.	1.50c.
F.o.b. Chicago Heights mills	1.50c.

### Iron

Common iron, f.o.b. Chicago	1.60c.
Refined iron, f.o.b. P'gh mills	2.75c.
Common iron, del'd Philadelphia	1.85c.
Common iron, del'd New York	1.90c.

### Tank Plates

Base per Lb.	
F.o.b. Pittsburgh mill	1.60c.
F.o.b. Chicago	1.70c.
F.o.b. Birmingham	1.75c.
Del'd Cleveland	1.8035c.
Del'd Philadelphia	1.7935c.
F.o.b. Coatesville	1.70c.
F.o.b. Sparrows Point	1.70c.
Del'd New York	1.898c.
C.I.F. Pacific ports	2.10c.
Wrought iron plates, f.o.b. P'gh	3.00c.

### Structural Shapes

Base per Lb.	
F.o.b. Pittsburgh mill	1.60c.
F.o.b. Chicago	1.70c.
F.o.b. Birmingham	1.75c.
F.o.b. Lackawanna	1.75c.
F.o.b. Bethlehem	1.70c.
Del'd Cleveland	1.8035c.
Del'd Philadelphia	1.8155c.
Del'd New York	1.86775c.
C.I.F. Pacific ports	2.10c.
C.I.F. Pacific ports (wide flange)	2.20c.

### Steel Sheet Piling

Base per Lb.	
F.o.b. Pittsburgh	1.90c.
F.o.b. Chicago mill	2.05c.
F.o.b. Buffalo	2.00c.

### Alloy Steel Bars

(F.o.b. Pittsburgh, Chicago, Buffalo, Massillon or Canton.)

### Alloy Quantity Bar Base.

S.A.E. Series	
Numbers	Differential per 100 Lb.
2000 (1/4% Nickel)	\$0.25
2100 (2/4% Nickel)	0.55
2300 (3/4% Nickel)	1.50
2500 (5% Nickel)	2.25
3100 Nickel Chromium	0.55
3200 Nickel Chromium	1.95
3300 Nickel Chromium	3.80
3400 Nickel Chromium	3.20
4100 Chromium Molybdenum (0.16 to 0.25 Molybdenum)	0.50
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum)	0.70
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum) (1.50 to 2.00 Nickel)	1.05
5100 Chromium Steel (0.60 to 0.90 Chromium)	0.35
5100 Chromium Steel (0.80 to 1.10 Chromium)	0.45
5100 Chromium Spring Steel	0.20
6100 Chromium Vanadium Bar	1.20
4100 Chromium Vanadium Spring Steel	0.95
9250 Silicon Manganese Spring Steel (flat)	0.25
Rounds and Square	0.50
Chromium Nickel Vanadium	1.50
Carbon Vanadium	0.95

Above prices are for hot-rolled steel bars forging quality. The differential for cold-drawn bars is 1/4c. a lb. higher, with standard classification for cold-finish alloy steel bars applying. For billets 4 x 4 to 10 x 10 in., the price for a gross ton is the net price for bars of the same analysis. Billets under 4 x 4 in. carry the steel bar base. Slabs with a section area of 16 in. or over carry the billet price. Slabs with sectional area of less than 16 in. or less than 2 1/2 in. thick, regardless of sectional area, take the bar price.

### Cold Finished Bars\*

Bars, f.o.b. Pittsburgh Mill	1.95c.
Bars, f.o.b. Chicago	2c.
Bars, Cleveland	2c.
Bars, Buffalo	2c.
Bars, Detroit	2.15c.
Bars, eastern Michigan	2.20c.
Shafting, ground, f.o.b. mill	1 1/4 in. 3.00c.
	1-3/16 to 1 1/2 in. 2.50c.
	1-9/16 to 1 1/4 in. 2.35c.
	1-15/16 to 2 1/2 in. 2.20c.
	2-15/16 to 6 in. 2.05c.

\* In quantities of 10,000 to 19,999 lb.

## SHEETS, STRIP, TIN PLATE TERNE PLATE

### Sheets

Hot Rolled	
No. 10, f.o.b. Pittsburgh	1.65c.
No. 10, f.o.b. Chicago mill	1.75c.
No. 10, del'd Philadelphia	1.96c.
No. 10, f.o.b. Birmingham	1.80c.
No. 10, c.I.F. Pacific Coast ports	2.27 1/2 c.

### Hot-Rolled Annealed

No. 24, f.o.b. Pittsburgh	2.25c.
No. 24, f.o.b. Chicago mills	2.35c.
No. 21, del'd Philadelphia	2.56c.
No. 24, f.o.b. Birmingham	2.40c.
No. 24, c.I.F. Pacific Coast ports	2.90c.
No. 24, wrought iron, Pittsburgh	4.30c.

### Heavy Cold-Rolled (Mill Run)

No. 10 gage, f.o.b. Pitts'h	1.95c.
No. 10 gage, f.o.b. Chicago mills	2.05c.
No. 10 gage, del'd Phila.	2.26c.
No. 10 gage, del'd Pacific Coast ports	2.70c.

### Light Cold-Rolled (Mill Run)

No. 20 gage, f.o.b. Pitts'h	2.40c.
No. 20 gage, f.o.b. Chicago mills	2.50c.
No. 20 gage, del'd Phila.	2.56c.
No. 20 gage, del'd Pacific Coast ports	2.95c.

### Auto Body and Steel Furniture

No. 10, f.o.b. Pittsburgh	2.15c.
No. 20, f.o.b. Pittsburgh	2.60c.
No. 20, f.o.b. Chicago	2.70c.

### Galvanized Sheets

No. 24, f.o.b. Pittsburgh	3.85c.
No. 24, f.o.b. Chicago mills	2.95c.
No. 24, del'd Philadelphia	3.16c.
No. 24, f.o.b. Birmingham	3.00c.
No. 24, c.I.F. Pacific Coast ports	3.50c.
No. 24, wrought iron, Pittsburgh	4.95c.

### Long Terme

No. 24, unassorted, 8-lb. coating	f.o.b. Pittsburgh 2.90c.
No. 20, f.o.b. Pittsburgh	2.90c.

### Vitreous Enameling Stock

No. 20, f.o.b. Pittsburgh	2.90c.
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### Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	2.50c.
No. 28, Chicago mill	2.60c.

### Tin Plate

Base per Box	
Standard cokes, f.o.b. P'gh district mill	\$4.25
Standard cokes, f.o.b. Gary	4.35

### Terne Plate

(F.o.b. Morgantown or Pittsburgh)	
(Per Package, 20 x 28 in.)	
8-lb. coating I.C.	\$8.70
15-lb. coating I.C.	11.00
20-lb. coating I.C.	11.80
25-lb. coating I.C.	13.00
30-lb. coating I.C.	13.80
40-lb. coating I.C.	15.30

### Hot-Rolled Hoops, Bands, Strips and Flats under 1/4 in.

Base per Lb.	
All widths up to 24 in., Pittsburgh	1.65c.
All widths up to 24 in., Chicago	1.75c.
Cooperage stock, Pittsburgh	1.75c.
Cooperage stock, Chicago	1.85c.

### Cold-Rolled Strips

F.o.b. Pittsburgh	2.25c.
F.o.b. Cleveland	2.25c.
Del'd Chicago	2.55c.
F.o.b. Worcester	2.45c.
Fender stock, No. 20 gage, Pittsburgh or Cleveland	2.85c.

## WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh and Cleveland.)

### To Manufacturing Trade

Per Lb.	
Bright wire	2.10c.
Spring wire	3.10c.

### To Jobbing Trade

Extras of 10c. a 100 lb. on mixed carloads, 20c. on joint carloads and 30c. on pooled cars and less-than-carload lots are applied on all merchant wire products. In carloads and mixed carloads a discount of 10 per cent on extras is allowed.	
Standard wire nails	\$2.10
Smoothed coated nails	2.10
Galvanized nails	3.60

### Base per 100 Lb.

Smooth annealed wire	\$2.25
Smooth galvanized wire	2.60
Polished staples	2.80
Galvanized staples	3.05
Barbed wire, galvanized	2.60
Woven wire fence, base column	55.00

Chicago and Anderson, Ind., mill prices are \$1 a ton over Pittsburgh base (on all products except woven wire fence, for which the Chicago price is \$2 above Pittsburgh); Duluth, Minn., and Worcester, Mass., mill prices are \$2 a ton over Pittsburgh, except for woven wire fence at Duluth which is \$3 over Pittsburgh, and Birmingham mill prices are \$3 a ton over Pittsburgh.

## STEEL AND WROUGHT PIPE AND TUBING

### Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio Mills

Butt Weld	
Inches	Steel
1/2	51 1/2
3/4	57
1	62
1 1/2	65 1/2
2	67 1/2
2 1/2	68 1/2
3	69 1/2
3 1/2	70 1/2
4	71 1/2
4 1/2	72 1/2
5	73 1/2
5 1/2	74 1/2
6	75 1/2
6 1/2	76 1/2
7	77 1/2
7 1/2	78 1/2
8	79 1/2
8 1/2	80 1/2
9	81 1/2
9 1/2	82 1/2
10	83 1/2
10 1/2	84 1/2
11	85 1/2
11 1/2	86 1/2
12	87 1/2
12 1/2	88 1/2
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# Sklap

(F.o.b. Pittsburgh or Youngstown)

	Per Lb.
Grooved	1.60c.
Universal	1.60c.
Sheared	1.60c.

## Wire Rods

(Common soft, base)

	Per Gross Ton
Pittsburgh	\$35.00
Cleveland	35.00
Chicago	36.00

## COKE, COAL AND FUEL OIL

### Coke

	Per Net Ton
Furnace, f.o.b. Connellsville	\$2.75 to \$4.00
Prompt	3.50 to 4.50
Foundry, f.o.b. Connellsville	7.50
Foundry, by-product, Chicago ovens, for delivery outside switching districts	8.25
Foundry, by-product, delivered in Chicago switching district	10.00
Foundry, by-product, New England, delivered	8.20 to 8.81
Foundry, by-product, Philadelphia, delivered	8.50
Foundry, by-product, Cleveland, delivered	8.26
Foundry, by-product, St. Louis, f.o.b. ovens	5.00
Foundry, by-product, del'd St. Louis	8.00
Foundry, by-product, del'd St. Louis	9.00

### Coal (Normal)

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	\$2.00 to \$2.25
Mine run coking coal f.o.b. W. Pa.	2.00 to 2.50
Gas coal, 1/4-in., f.o.b. Pa. mines	2.00 to 2.50
Mine run gas coal, f.o.b. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.25
Gas slack, f.o.b. W. Pa. mines	1.00 to 1.25

### Fuel Oil

	Per Gal. f.o.b. Bayonne, N. J.
No. 3 distillate	4.00c.
No. 4 industrial	3.50c.
	Per Gal. f.o.b. Baltimore
No. 3 distillate	4.00c.
No. 4 industrial	3.50c.
	Per Gal. del'd Chicago
No. 3 industrial fuel oil	3.73c.
No. 5 industrial fuel oil	3.23c.
	Per Gal. f.o.b. Cleveland
No. 3 distillate	5.25c.
No. 4 industrial	5.00c.

## REFRACTORIES

### Fire Clay Brick

	Per 1000 f.o.b. Works
High-heat Intermediate Duty Brick	\$45.00
Duty Brick	40.00
Pennsylvania	45.00
Maryland	45.00
New Jersey	45.00
Ohio	45.00
Kentucky	45.00
Missouri	45.00
Illinois	45.00
Ground fire clay, per ton	7.00

### Chrome Brick

	Per Net Ton
Standard size	\$45.00

### Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	\$45.00
Chicago	44.00
Birmingham	55.00
Silica clay, per ton	8.00

### Magnesite Brick

	Per Net Ton
Standard sizes, burned, f.o.b. Baltimore and Chester, Pa.	\$65.00
Unburned, f.o.b. Baltimore	52.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00
Domestic, f.o.b. Chewelah, Wash.	22.00

## CAST IRON PIPE

	Per Net Ton
6-in. and larger, del'd Chicago	\$43.40 to \$44.40
6-in., del'd Chicago	46.40 to 47.40
6-in., and larger, del'd New York	38.30
6-in., del'd New York	41.30
6-in., and larger, Birmingham	35.00 to 36.00
4-in., Birmingham	38.00 to 39.00
Class "A" and gas pipe, \$3 extra.	

# Pig Iron, Ores, Ferroalloys

## VALLEY

	Per Gross ton f.o.b. Valley furnace:
Basic	\$16.00
Bessemer	17.00
Gray forge	16.50
No. 2 foundry	16.50
No. 3 foundry	16.00
Malleable	16.50
Low phosph., copper free	25.00

Freight rate to Pittsburgh or Cleveland district, \$1.89.

## PITTSBURGH

	Per gross ton, f.o.b. Pittsburgh district furnace:
Basic	\$16.50
No. 2 foundry	17.00
No. 3 foundry	16.50
Malleable	17.00
Bessemer	17.50

Freight rates to points in Pittsburgh district range from 69c. to \$1.26.

## CHICAGO

	Per gross ton at Chicago furnaces:
N't'n No. 2 fdy.	\$17.00
N't'n No. 1 fdy.	17.50
Malleable, not over 2.25 sil.	17.00
High phosphorus	17.00
Lake Super. charcoal, sil. 1.50, by rail	23.17
Southern No. 2 fdy.	\$16.14 to 17.14
Low, phos., sil. 1 to 2, copper free	25.00
Silvery, sil. 8 per cent.	23.17
Bess. ferroall'n, 15 per cent.	38.67

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable, which are f.o.b. local furnaces, not including a switching charge.

## ST. LOUIS

	Per gross ton at St. Louis:
No. 2 fdy., sil. 1.75 to 2.25, f.o.b. Granite City, Ill.	\$17.00
Del'd St. Louis	17.85
Malleable, f.o.b. Granite City	17.50
Southern fdy., sil. 1.75 to 2.25 del'd St. Louis	17.35

Freight rates, 83c (average) Granite City to St. Louis; \$2.30 from Chicago; \$4.56 from Birmingham.

## NEW YORK

	Per Gross ton, delivered New York district:
*Buffalo, No. 2, del'd eastern N. J.	\$18.41 to \$18.91
*Buffalo malleable, del'd eastern N. J.	18.91 to 19.41
East Pa. No. 2 fdy. del'd eastern N. J.	18.02 to 18.52

Freight rates: \$1.52 to \$2.63 from eastern Pennsylvania.

\*Prices delivered to New Jersey cities having rate of \$5.41 a ton from Buffalo.

## BUFFALO

	Per gross ton, f.o.b. furnace:
No. 2 fdy.	\$17.00
Malleable, sil. up to 2.25	17.50
Basic	15.00
Lake Superior charcoal, del'd	23.41

\*Each increase of 25 points of silicon above base foundry grade takes 25c. extra.

## CINCINNATI

	Per gross ton, delivered Cincinnati:
A's. fdy., sil. 1.75 to 2.25	\$17.73
Tenn. fdy., sil. 1.75 to 2.25	17.73
N't'n No. 2 foundry	\$18.13 to 19.52
S't'n Ohio silvery, 8%	25.14

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.82 from Birmingham.

## CLEVELAND

	Per gross ton at Cleveland furnace:
N't'n No. 2 fdy.	\$16.50
Malleable	16.50
Ohio silvery, 8 per cent.	26.25
Stand. low phos., Valley	25.00
Southern No. 2 fdy.	17.14

Prices are f.o.b. furnace except on Southern foundry and silvery iron. Freight rates: 63c. average local switching charge; \$3.00 from Jackson, Ohio; \$6.14 from Birmingham.

## PHILADELPHIA

	Per gross ton at Philadelphia:
*East. Pa. No. 2	\$17.34
Basic (del'd east Pa.)	17.09
Malleable	17.84
Stand. low phos. (f.o.b. east. Pa. furnace)	\$22.00 to \$23.00
Cop. b'rg low phos. (f.o.b. furnace)	22.00 to 23.00
Va. No. 2	21.79
Va. No. 2X	22.29

Prices, except as specified otherwise, are del'd Philadelphia. Freight rates: 84c. to \$1.79 from eastern Pennsylvania; 84c. to \$1.79 from Virginia furnaces.

\*Each increase of 25 points of silicon above base grade takes 25c. extra.

## BIRMINGHAM

	Per gross ton, f.o.b. Birmingham dist. furnace:
No. 2 fdy., 1.75 to 2.25 sil.	\$13.00
Basic	13.00

## NEW ENGLAND

	Per gross ton delivered Boston and nearby New England points:
Mystic, sil. 1.75 to 2.25	\$18.50
Buffalo, sil. 1.75 to 2.25	18.50
Ala., sil. 1.75 to 2.25	18.00

## CANADA

	Per gross ton:
Delivered Toronto	
No. 1 fdy., sil. 2.25 to 2.75	\$21.00
No. 2 fdy., sil. 1.75 to 2.75	20.50
Malleable	21.00
Delivered Montreal	
No. 1 fdy., sil. 2.25 to 2.75	\$22.50
No. 2 fdy., sil. 1.75 to 2.25	22.00
Malleable	22.50
Basic	22.00

## Ferromanganese

	Per Gross Ton
Domestic, 80%, seaboard, (carloads)	\$82.00
Domestic, 80%, seaboard, (less carloads)	89.00

## Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	\$27.00

## Electric Ferro-silicon

	Per Gross Ton Delivered
10% (carloads)	\$74.50
50% (less carloads)	82.00
75% (carloads)	120.00
75% (less carloads)	130.00
14% to 16% (f.o.b.) Welland, Ont. (in carloads)	31.00
14% to 16% (less carloads)	36.00

## Silvery Iron

	F.o.b. Jackson County, Ohio, Furnace
	Per Gross Ton
6%	\$21.25
7%	22.25
8%	23.25
9%	24.25
10%	25.25
11%	26.75
	Per Gross Ton
12%	\$28.25
13%	29.75
14%	31.25
15%	32.75
16%	34.25
17%	35.75

## Bessemer Ferro-silicon

	F.o.b. Jackson County, Ohio, Furnace
	Per Gross Ton
10%	\$32.25
11%	33.25
12%	34.25
13%	35.25
14%	36.25
15%	37.25
16%	38.25
17%	39.25

Manganese 1 1/2 to 3%. \$1 a ton additional. For each unit of manganese over 3%, \$1 a ton additional. Phosphorus 0.65% or over, \$1 a ton additional.

## Other Ferroalloys

	Ferrotungsten, per lb. wo. del. carloads
Ferrotungsten, less carloads	94c.
Ferromanganese, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads	9.50c.

## PITTSBURGH

	Per gross ton delivered consumers' yards:
No. 1 heavy melting steel	\$13.50 to \$14.50
No. 2 heavy melting steel	12.00 to 12.50
No. 2 railroad wrought	14.00 to 14.50
Scrap rails	14.00 to 14.50
Rails 8 ft. and under	15.50 to 16.00
Sheet bar crops, ordinary	14.50 to 15.00
Compressed sheet steel	13.00 to 13.50
Hand bundled sheet steel	12.00 to 12.50
Hvy. steel axle turnings	12.00 to 12.50
Machine shop turnings	10.50 to 11.00
Short shov. steel turnings	10.50 to 11.00
Short mixed borings and turnings	10.00 to 10.50
Cast iron borings	10.00 to 10.50
Cast iron car wheels	13.00 to 13.50
Heavy breakable cast	10.00 to 10.50
No. 1 cast	11.50 to 12.00
Railr. knuckles and couplers	15.50 to 16.00
Rail, coil and leaf springs	15.50 to 16.00
Rolled steel wheels	15.50 to 16.00
Low phos. billet crops	17.00 to 17.50
Low phos. sheet bar crops	15.50 to 16.00
Low phos. plate scrap	15.00 to 15.50
Los phos. punchings	15.50 to 16.00
Steel car axles	16.00 to 16.50

## CHICAGO

	Delivered Chicago district consumers:
	Per Gross Ton
Heavy melting steel	\$10.50 to \$11.00
Shoveling steel	10.50 to 11.00

Ferrocromium, 2% carbon	16.50c. to 17.00c.
Ferrocromium, 1% carbon	17.50c. to 18.00c.
Ferrocromium, 0.10% carbon	19.50c. to 20.00c.
Ferrocromium, 0.06% carbon	20.00c. to 20.50c.
Ferrovandium, del. per lb. contained Va.	\$2.60 to 2.80
Ferrocobaltitium, 15 to 18% per net ton, f.o.b. furnace in carloads	160.00
Ferrophosphorus, electric, or blast furnace material, in carloads, 18%, Rockdale, Tenn. base, per gross ton with \$2 unitage	50.00
Ferrophosphorus, electric, 24% f.o.b. Anniston, Ala., per gross ton with \$2.75 unitage	65.00
Ferromolybdenum, per lb. Mo., del.	95c.
Calcium molybdate, per lb. Mo., del.	80c.
Silico spiegel, per ton, f.o.b. furnace, car lots	\$36.00
Ton lots or less, per ton	41.00
Silico-manganese, gross ton, delivered:	
2.50% carbon grade	85.00
2% carbon grade	90.00
1% carbon grade	100.00
Spot prices	\$5 a ton higher

## Ores

### Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range, Bessemer, 51.5% iron	\$4.80
Old range, non-Bessemer, 51.50% iron	4.65
Mesabi Bessemer, 51.50% iron	4.65
Mesabi non-Bessemer, 51.50% iron	4.50
High phosphorus, 51.50% iron	4.40

### Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron, low phos., copper free, 55 to 58% iron, dry Spanish or Algerian	8c.
Iron, low phos., Swedish, average 64 1/2% iron	8.50c.
Iron, basic or foundry, Swedish, average, 65% iron	8c.
Iron, basic or foundry, Russian, aver. 65% iron (nom.)	8c.
Manganese, Caucasian, washed 52% manganese, African, Indian, 44-48%	20c.
Manganese, African, Indian, 49-51%	21c.
Manganese, Brazilian, 46 to 48%	17c.
	Per Net Ton Unit
Tungsten, Chinese wolframite, duty paid*	\$12.00
Tungsten, domestic scheelite*	\$11.00 to \$12.00

	Per Gross Ton
Chrome, 45%, Cr2O3, crude, c.i.f. Atlantic Seaboard	16.00
Chrome, 48%, Cr2O3, c.i.f. Atlantic seaboard	18.00

\*Quotations nominal in absence of sales.

## Fluorspar

	Per Net Ton
Domestic, washed gravel, 85-5 f.o.b. Kentucky and Illinois mines	\$14.00
No. 2 lump, 85-5, f.o.b. Kentucky and Illinois mines	16.00
Foreign, 85% calcium fluoride, not over 5% silicon, c.i.f. Atlantic port, duty paid	17.00
Domestic, No. 1 ground bulk, 85 to 98% calcium fluoride, not over 2 1/2% silicon, f.o.b. Illinois and Kentucky mines	30.00

# Iron and Steel Scrap

## PITTSBURGH

	Per gross ton delivered consumers' yards:
No. 1 heavy melting steel	\$13.50 to \$14.50
No. 2 heavy melting steel	12.00 to 12.50
No. 2 railroad wrought	14.00 to 14.50
Scrap rails	14.00 to 14.50
Rails 8 ft. and under	15.50 to 16.00
Sheet bar crops, ordinary	14.50 to 15.00
Compressed sheet steel	13.00 to 13.50
Hand bundled sheet steel	12.00 to 12.50
Hvy. steel axle turnings	12.00 to 12.50
Machine shop turnings	10.50 to 11.00
Short shov. steel turnings	10.50 to 11.00
Short mixed borings and turnings	10.00 to 10.50
Cast iron borings	10.00 to 10.50
Cast iron car wheels	13.00 to 13.50
Heavy breakable cast	10.00 to 10.50
No. 1 cast	11.50 to 12.00
Railr. knuckles and couplers	15.50 to 16.00
Rail, coil and leaf springs	15.50 to 16.00
Rolled steel wheels	15.50 to 16.00
Low phos. billet crops	17.00 to 17.50
Low phos. sheet bar crops	15.50 to 16.00
Low phos. plate scrap	15.00 to 15.50
Los phos. punchings	15.50 to 16.00
Steel car axles	16.00 to 16.50

## CHICAGO

No. 2 busheling	\$4.00 to \$4.50
Locomotive tires, smooth	9.00 to 9.50
Pipe and flues	4.75 to 5.25
No. 1 machinery cast	10.50 to 11.00
Clean automobile cast	10.00 to 10.50
No. 1 railroad cast	10.00 to 10.50
No. 1 agricultural cast	8.75 to 9.25
Stove plate	7.75 to 8.25
Grate bars	6.75 to 7.25
Brake shoes	9.75 to 10.25

## PHILADELPHIA

Per gross ton delivered consumers' yards:	
No. 1 heavy melting steel	\$12.00
No. 2 heavy melting steel	\$10.00 to 10.50
No. 1 railroad wrought	12.00
Bundled sheets	8.50 to 9.00
Hydraulic compressed, new	10.50 to 11.00
Hydraulic compressed, old	8.50 to 9.00
Machine shop turnings	10.00 to 10.50
Heavy axle turnings	7.00
Cast borings	10.00 to 10.50
Heavy breakable cast	10.00 to 10.50
Stove plate (steel works)	9.50
No. 1 low phos. heavy	15.00
Couplers and knuckles	14.00
Roller steel wheels	12.00
No. 1 blast furnace	7.00
Spec. iron and steel pipe	10.00 to 10.50
Shafting	15.00 to 15.50
Steel axles	15.00 to 15.50
No. 1 forge fire	12.50 to 13.00
Cast iron car wheels	12.00 to 12.50
No. 1 cast	12.00 to 13.00
Cast borings (chem.)	10.00 to 10.50
Steel rails for rolling	12.00 to 12.50

## CLEVELAND

Per gross ton delivered consumers' yards:	
No. 1 heavy melting steel	\$11.00 to \$11.25
No. 2 heavy melting steel	10.50 to 10.75
Compressed sheet steel	10.00 to 10.50
Light bundled sheet stamp	
ings	6.50 to 7.00
Drop forge flashings	10.00 to 10.50
Machine shop turnings	7.50 to 8.00
Short shoveling turnings	8.00 to 8.50
No. 1 busheling	10.00 to 10.50
Steel axle turnings	7.50 to 8.00
Low phos. billet crops	12.50 to 13.00
Cast iron borings	8.00 to 8.50
Mixed borings and short	
turnings	8.00 to 8.50
No. 2 busheling	11.00 to 11.50
No. 1 cast	11.00 to 11.50
Railroad grate bars	6.50 to 7.00
Stove plate	7.50 to 8.00
Rails under 3 ft.	10.00 to 10.50
Rails for rolling	10.50 to 11.00
Railroad malleable	10.00 to 10.50
Cast iron car wheels	11.00

## BUFFALO

Per gross ton, f.o.b. Buffalo consumers' yards:	
No. 1 heavy melting steel	\$10.50 to \$11.00
No. 2 heavy melting scrap	10.00 to 10.50
Scrap rails	8.75 to 9.25
New hydraulic comp. sheets	10.00 to 10.50
Old hydraulic comp. sheets	9.50 to 10.00
Drop forge flashings	10.00 to 10.50
No. 1 busheling	10.00 to 10.50
Hvy. steel axle turnings	7.50 to 8.00
Machine shop turnings	6.25 to 6.50
Knuckles and couplers	11.50 to 12.00
Coil and leaf springs	11.50 to 12.00
Roller steel wheels	11.50 to 12.00
Low phos. billet crops	12.50 to 13.00
Short shov. steel turnings	8.50 to 9.00
Short mixed borings and	
turnings	6.50 to 7.00
Cast iron borings	6.50 to 7.00
No. 2 busheling	6.00 to 6.50
Steel car axles	11.00 to 12.00
Iron axles	11.00 to 12.00
No. 1 machinery cast	11.25 to 12.25
No. 1 cupola cast	11.00 to 12.00
Stove plate	8.75 to 9.25
Steel rails, 3 ft. and under	12.00 to 12.50
Cast iron car wheels	9.00 to 9.50
Industrial malleable	11.50 to 12.00
Railroad malleable	10.00 to 12.50
Chemical borings	7.50 to 8.00

## BIRMINGHAM

Per gross ton delivered consumers' yards:	
Heavy melting steel	\$10.00 to \$10.50
Scrap steel rails	10.00
Short shoveling turnings	5.50
Stove plate	7.00 to 7.50
Steel axles	11.00 to 11.50
Iron axles	11.00 to 11.50
No. 1 railroad wrought	7.00 to 7.50
Rails for rolling	11.50
No. 1 cast	10.50
Tramcar wheels	10.00
Cast iron borings, chem.	8.00

## ST. LOUIS

Per gross ton delivered consumers' yards:	
Selected heavy steel	\$9.50 to \$10.00
No. 1 heavy melting	8.50 to 9.00
No. 2 heavy melting	8.00 to 8.50
No. 1 locomotive	7.00 to 7.50
Misc stand-sec. rails	10.00 to 10.50
Railroad springs	10.00 to 10.50
Bundled sheets	6.00 to 6.50
No. 2 railroad wrought	8.50 to 9.00
No. 1 busheling	4.75 to 5.25
Cast iron borings and	
shoveling turnings	3.50 to 4.00
Rails for rolling	10.50 to 11.00
Machine shop turnings	3.50 to 4.00
Heavy turnings	4.75 to 5.25
Steel car axles	10.00 to 10.50
Iron car axles	8.00 to 8.50
Wrot. iron bars and trans.	9.00 to 9.50
No. 1 railroad wrought	6.50 to 7.00
Steel rails less than 3 ft.	11.50 to 12.00
Steel angle bars	10.00 to 10.50
Cast iron car wheels	8.50 to 9.00
No. 1 machinery cast	8.00 to 8.50
Railroad malleable	8.50 to 9.00
No. 1 railroad cast	8.50 to 9.00
Stove plate	7.00 to 7.50
Relay rails, 60 lb. and	
under	16.00 to 16.50

Relay rails, 60 lb. and	\$20.00 to \$21.00
under	6.00 to 6.50
Agricult. malleable	6.00 to 6.50

## BOSTON

Dealers' buying prices per gross ton:	
No. 1 heavy melting steel	\$7.25 to \$7.75
Scrap T rails	7.00 to 7.50
Machine shop turnings	4.25 to 4.50
Cast iron borings	4.25 to 4.50
Bundled skeleton, long	5.50 to 6.25
Forge flashings	4.75 to 5.00
Blast furnace scrap	4.75 to 5.00
Shafting	9.00 to 9.50
Steel car axles	8.50 to 9.00
Wrought pipe	6.50 to 7.00
For re-rolling	6.50 to 7.00
Cast iron borings, chemical	10.00 to 10.50

Per gross ton delivered consumers' yards:	
Textile cast	\$10.00 to \$10.25
No. 1 machinery cast	10.00 to 10.25
Stove plate	6.25 to 6.50
Railroad malleable	11.00 to 12.00

## NEW YORK

Dealers' buying prices per gross ton:	
No. 1 heavy melting steel	\$8.00 to \$8.25
No. 2 heavy melting steel	7.75 to 7.90
Heavy melting steel (yard)	4.00 to 4.50
No. 1 heavy breakable cast	6.50 to 6.75
Stove plate (steel works)	5.25 to 6.00
Machine shop turnings	4.00 to 4.50
Short shoveling turnings	4.00 to 4.50
Cast borings	4.00 to 4.25
No. 1 blast furnace	4.00 to 4.25
Steel car axles	10.00 to 10.50

## PITTSBURGH

Base per Lb.	
Plates	2.85c
Structural shapes	2.85c
Soft steel bars and small shapes	2.60c
Reinforcing steel bars	2.60c
Cold-finished and screw stock:	
Rounds and hexagons	3.20c
Squares and flats	3.20c
Hoops and bands, under 1/4 in.	2.95c
Hot-rolled annealed sheets (No. 24),	
25 or more bundles	3.15c
Galv. sheets (No. 24), 25 or more	3.50c
Hot-rolled sheets (No. 10)	2.50c
Galv. corrug. sheets (No. 28), per	
square (more than 3750 lb.)	\$3.32
Spikes, large	2.40c
Small	2.65c
Boat	2.90c
Track bolts, all sizes, per 100 count,	
70 per cent off list.	
Machine bolts, 100 count,	
70 per cent off list.	
Carriage bolts, 100 count,	
70 per cent off list.	
Nuts, all styles, 100 count,	
70 per cent off list.	
Large rivets, base per 100 lb.	\$3.25
Wire, black, soft ann'l'd, base per	
100 lb.	2.90
Wire, galv. soft, base per 100 lb.	3.35
Common wire nails, per keg	2.45
Cement coated nails, per keg	2.45
On plates, structurals, bars, reinforcing	
bars, bands, hoops and blue annealed	
sheets, base applied to orders of 400 to	
999 lb.	

## CHICAGO

Base per Lb.	
Plates and structural shapes	3.00c
Soft steel bars	2.75c
Reinfor. bars, billet steel	1.75c to 1.90c
Rail steel reinforcement	1.50c to 1.65c
Cold-fn. steel bars and shafting	
Rounds and hexagons	3.00c
Flats and squares	3.50c
Bands, 3/16 in. (in Nos. 10 and	
12 gages)	2.95c
Hoops (No. 14 gage and lighter)	3.50c
Hot-rolled annealed sheets (No. 24)	3.45c
Galv. sheets (No. 24)	4.10c
Hot-rolled sheets (No. 10)	2.75c
Spikes (3/16 in. and lighter)	3.45c
Track bolts	4.30c
Rivets, structural (keg lots)	3c
Rivets, boiler (keg lots)	3c
Per Cent Off List	
Machine bolts	65
Carriage bolts	65
Coach and lag screws	65
Hot-pressed nuts, sq., tap, or blank	65
Hot-pressed nuts, hex., tap, or blank	65
Hex. head cap screws	80 and 10
Cup point set screws	75
Flat head bright wood screws	50 and 10
Spring cotters	60 and 10
Stove bolts	39
Rd. hd. tank rivets, 7/16 in. and	
smaller	65
Wrought washers	\$4.50 off list
No. 8 black ann'l'd wire per 100 lb.	\$3.45
Comm. wire nails, base per keg	2.55
Cement c'd nails, base per keg	2.55

## NEW YORK

Base per lb.	
Plates and struc. shapes	3.10c
Soft steel bars, small shapes	3.10c
Iron bars, swed. charcoal	3.94c
Iron bars, swed. charcoal	6.50c
Cold-fn. shafting and screw stock:	
Rounds and hexagons	3.70c
Flats and squares	4.20c
Cold-roll. strip, soft and quarter	
hard	4.95c
Hoops	3.30c
Rands	3.30c
Hot-rolled sheets (No. 10)	3.00c
Hot-rolled ann'l'd sheets (No. 24)	3.65c
Galvanized sheets (No. 24)	4.00c
Long term sheets (No. 24)	4.50c
Standard tool	12.00c
Wire, black annealed	2.60c
Wire, galv. annealed (No. 10)	4.05c
Tire steel 1/4 x 1/4 in. and larger	3.40c
Smooth finish, 1 to 2 1/4 x 1/4 in.	
and larger	3.75c

Spec. iron and steel pipe	\$4.50 to \$5.00
Forge fire	5.50 to 6.00
No. 1 railroad wrought	6.50 to 7.00
No. 1 yard wrought, long	4.50 to 5.00
Rails for rolling	7.50 to 8.00
No. 1 cast	6.50 to 7.00
No. 2 cast	5.50 to 6.50
Stove plate (foundry)	6.00 to 6.50
Cast borings (chemical)	6.50 to 7.00

Per gross ton, delivered local foundries:	
No. 1 machinery cast	\$11.00
No. 1 hvy. cast (cupola	
size)	9.00
No. 2 cast	7.00

## CINCINNATI

Dealers' buying prices per gross ton:	
Heavy melting steel	\$9.25 to \$9.75
Scrap rails for melting	9.00 to 9.50
Loose sheet clippings	4.50 to 5.00
Bundled sheets	5.50 to 6.00
Machine shop turnings	5.50 to 6.00
No. 1 busheling	6.75 to 7.25
No. 2 busheling	3.00 to 3.50
Rails for rolling	9.50 to 10.00
Locomotive tires	6.00 to 6.50
Short rails	11.00 to 11.50
Cast iron car wheels	8.50 to 9.00
No. 1 machinery cast	9.50 to 10.00
No. 1 railroad cast	9.00 to 9.50
Burnt cast	6.75 to 7.25
Stove plate	6.75 to 7.25
Agricultural malleable	8.50 to 9.00
Railroad malleable	9.00 to 9.50

# Warehouse Prices for Steel Products

Open hearth spring steel, bases	
4.50c, to 7.00c	
Common wire nails, base, per keg	\$2.90
Machine bolt, cut thread:	Off List
1/4 x 6 in. and smaller, 65 to 65 and 10	
1 x 30 in. and smaller, 65 to 65 and 10	
Carriage bolts, cut thread:	
1/4 x 6 in. and smaller, 65 to 65 and 10	
1/2 x 20 in. and smaller, 65 to 65 and 10	
Boiler tubes:	Per 100 Ft.
Lap welded, 2-in.	\$18.05
Seamless welded, 2-in.	19.24
Charcoal iron, 2-in.	24.94
Charcoal iron, 4-in.	63.65
*No. 28 and lighter, 36 in. wide, 20c	
higher per 100 lb.	

## ST. LOUIS

Base per Lb.	
Plates and struc. shapes	3.25c
Bars, soft steel or iron	3.00c
Cold-fn. rounds, shafting, screw	
stock	3.36c
Hot-rolled annealed sheets (No. 24)	3.60c
Galv. sheets (No. 24)	4.00c
Hot-rolled sheets (No. 10)	3.00c
Black corrug. sheets (No. 24)	3.65c
Galv. corrug. sheets	4.05c
Structural rivets	3.00c
Boiler rivets	3.00c
Per Cent Off List	
Tank rivets, 7/16 in. and smaller,	
100 lb. or more	70
Less than 100 lb.	70
Machine bolts	65
Carriage bolts	65
Lag screws	65
Hot-pressed nuts, sq. blank or	
tapped, 200 lb. or more	65
Less than 200 lb.	55
Hot-pressed nuts, hex., blank or	
tapped, 200 lb. or more	65
Less than 200 lb.	55

## PHILADELPHIA

Base per Lb.	
*Plates, 1/4-in. and heavier	2.45c
*Structural shapes	2.45c
*Soft steel bars, small shapes, iron	
bars (except bands)	2.45c
Reinfor. steel bars, sq., twisted and	
deform.	2.30c
Cold-finished steel bars	3.35c
*Steel hoops	3.00c
*Steel bands, No. 12 to 3/16 in.	
incl.	2.75c
Spring steel	5.00c
*Hot-rolled annealed sheets (No. 24)	3.15c
*Galvanized sheets (No. 24)	3.50c
*Hot-rolled annealed sheets (No.	
10)	2.70c
Diam. pat. floor plates, 1/4 in.	5.00c
Swedish iron bars	6.00c

These prices are subject to quantity differentials except on reinforcing and Swedish iron bars.  
\*Base prices subject to deductions on orders aggregating 4000 lb. or over.  
\*For 50 bundles or over.

## CLEVELAND

Base per Lb.	
Plates and struc. shapes	2.95c
Soft steel bars	2.75c
Reinfor. steel bars	1.75c to 2.35c
Cold-fn. steel bars	2.35c
Flat rolled steel under 1/4 in.	3.00c
Cold-finished strip	5.55c
Hot-rolled annealed sheets (No. 24)	3.25c
Galvanized sheets (No. 24)	3.85c
Hot-rolled sheets (No. 10)	2.75c
Black ann'l'd wire, per 100 lb.	\$2.55
No. 9 galv. wire, per 100 lb.	2.90
Comm. wire nails, base per keg	2.35

\*Net base, including boxing and cutting to length.

## CINCINNATI

Base per Lb.	
Plates and struc. shapes	3.25c
Bars, soft steel or iron	3.00c
New billet reinf. bars	3.00c
Rail steel reinf. bars	3.00c
Hoops	3.75c
Rands	3.20c
Cold-finished bars	3.32c

## DETROIT

Dealers' buying prices per gross ton:	
Hvy. melting steel	\$9.50 to \$10.30
Borings and short turnings	6.75 to 7.25
Long turnings	6.00 to 6.50
No. 1 machinery cast	8.50 to 9.00
Automotive cast	10.00 to 10.50
Hydraul. comp. sheets	9.50 to 10.00
Stove plate	5.75 to 6.25
New factory busheling	7.75 to 8.25
Old No. 2 busheling	5.75 to 6.25
Sheet clippings	6.25 to 6.75
Flashings	



# Fabricated Structural Steel

## Awards in Smaller Volume—New Projects Higher

LETTINGS of 8450 tons are considerably below those in the previous week, which totaled 33,135 tons, and compare with 6225 tons two weeks ago. The two largest awards were for breweries, 1800 tons for the Premier-Pabst Corp., in Peoria, Ill., and 1200 tons for the Hoffman Beverage Co. in Newark, N. J. New projects of 9100 tons compare with 7000 tons last week and 8000 tons two weeks ago. The largest inquiry reported is 1392 tons for a dam and irrigation project at Oberlin, La. Structural steel lettings for the week follow:

### NORTH ATLANTIC STATES

Burlington, Vt., 150 tons, Y.M.C.A. unit, to Vermont Structural Corp.

Waltham, Mass., 100 tons, Hovey Institute building, to Boston Bridge Works, Inc.

Boston, 100 tons, Neponset River highway bridge, to Boston Bridge Works, Inc.

Colrain, Mass., 100 tons, State bridge, to Boston Bridge Works, Inc.

New Brighton, N. Y., 235 tons, brewery for E. B. Hittleman Corp., to an unnamed fabricator.

Newark, N. J., 1200 tons, brewery for Hoffman Beverage Co., to McClintic-Marshall Corp.

Essex County, N. Y., 125 tons, highway bridge, to Phoenix Bridge Co.

Buffalo, 370 tons, University of Buffalo library, to Buffalo Structural Steel Co.

Philadelphia, 165 tons, Peerless Brewing Co. stockhouse, to Belmont Iron Works.

Lebanon County, Pa., 145 tons, Black's bridge, to McClintic-Marshall Corp.

Orange, N. J., 159 tons, tank supports for Orange Brewery Co., to Albert Smith Sons Co.

Edgewater, N. J., 204 tons, storage bin for National Sugar Refining Co., to an unnamed fabricator.

Washington, 252 tons I beams, channels, etc., to an unnamed fabricator.

### SOUTH AND SOUTHWEST

New Bern, N. C., 320 tons, post office and court house, to Bethlehem Fabricators, Inc.

Dewey, Okla., 200 tons, clinker building for Dewey Portland Cement Co., to North American Car Co., Chicago.

State of Oklahoma, 400 tons, bridges; 300 tons to Pittsburgh-Des Moines Steel Co.; 100 tons to J. B. Klein Iron & Foundry Co., Oklahoma City.

### CENTRAL STATES

Grand Rapids, Mich., 270 tons, State highway bridge, to R. C. Mahon Co.

Grayling, Mich., 155 tons, State highway bridge, to R. C. Mahon Co.

Cleveland, 300 tons, building for Peerless Brewing Co., to Republic Structural Iron Works.

Peoria, Ill., 1800 tons, brewery for Premier-Pabst Corp., to Mississippi Valley Structural Steel Co.

Alexander County, Ill., 250 tons, highway bridge, to Midland Structural Steel Co.

Minneapolis, 157 tons, grain elevator, to an unnamed fabricator.

Chicago, Burlington & Quincy, 100 tons girder span, to Hansell-Elcock Foundry Co.

Missouri Pacific Railroad, 600 tons, bridge, to American Bridge Co.

### WESTERN STATES

San Francisco, 200 tons, trusses for United States Forestry Service, to Schrader Iron Works.

Narles, Cal., 170 tons, Southern Pacific viaduct span, to Virginia Bridge & Iron Co.

### NEW STRUCTURAL STEEL PROJECTS

#### NORTH ATLANTIC STATES

State of New York, 1230 tons, bridges; Steuben County, 100 tons; Allegany County, 340 tons; Genesee County, 200 tons; Franklin County, 150 tons; Ulster County, 440 tons; bids Aug. 11.

State of New York, 800 tons, highway bridges; bids Aug. 18.

Erie Railroad, 800 tons, bridges.

Jamaica, N. Y., 480 tons, building for Spear & Co.

Wantaugh, N. Y., 600 tons, two bridges for Jones Beach Parkway.

Central Railroad of New Jersey, 575 tons, bridge at Newark, N. J.

Scranton, Pa., 200 tons, bottling house for Standard Brewing Co.

Rocks, Md., 140 tons, State highway bridge.

Baltimore, 900 tons, rebuilding pier for Pennsylvania Railroad; Arundel Corp., Baltimore, general contractor.

## Pipe Lines

Gas Fuel Service Co., Hanford, Cal., will install natural gas welded steel pipe lines in agricultural districts in Fresno and Kings counties, and will build main trunk line from wells of Kettleman Lakeview Gas & Oil Co., Dudley Ridge district, Kings County. Project will cost about \$675,000.

Big Rapids Gas Co., Big Rapids, Mich., recently acquired by new interests, headed by James and W. C. Taggart, plans extensions and improvements in pipe line system, which will be used for natural gas instead of artificial gas. Purchasing interests have two gas wells in Austin Township, near Big Rapids, and will make connection there for supply.

Carlton, Ore., plans steel pipe line to replace present wood pipe for water trunk line. Cost \$18,500. Financing is being arranged.

Los Angeles has taken bids on 186 tons of 22-in. 14 gage steel pipe.

A. O. Smith Corp., Milwaukee, has been awarded 10,000 tons for Republic Steel Corp., Youngstown, 1500 tons for an extension to a gas pipe line in the Southwest.

## Railroad Equipment

General Chemical Co. has purchased 100 50-ton tank cars from American Car & Foundry Co.

A. E. Staley Mfg. Co. has purchased 21 8000-gal. tank cars and one 6100-gal. tank car from General American Tank Car Corp.

Standard Steel Car Co. will repair 100 70-ton hopper cars for Montour Railroad.

Greenville Steel Car Co. will repair 20 70-ton gondola cars for Youngstown & Northern.

Wabash has been authorized to arrange fund of \$390,000 for conversion and repair of 300 automobile box cars and about 300 hopper coal cars. Work will be carried out at company shops.

Los Angeles will take bids Aug. 21 on 420 tons of 90-lb. rails 85 tons of tie plates and 35 tons of angles. Specification No. 3191.

### THE SOUTH

State of Mississippi, 575 tons, bridges.

Laredo, Tex., 475 tons, highway bridge.

Oberlin, La., 1392 tons, dam and irrigation project for Louisiana Power Corp.

### CENTRAL STATES

Morgan County, Ind., 115 tons, bridge over Indian Creek.

Cleveland, 415 tons, brewery buildings for Brewing Co. of America.

Detroit, 300 tons, display building for Chrysler Corp.

Justice Park, Ill., 1500 tons, viaduct, American Bridge Co. low bidder.

Morris, Ill., 1275 tons, bridge over Illinois River. McClintic-Marshall Corp. low bidder.

Detroit, 1500 tons, piling for dock for Shell Petroleum Co.

### WESTERN STATES

Monida, Mont., 350 tons, building.

Spencer, Idaho, 400 tons, highway bridge.

Riverside, Cal., 150 tons, post office.

San Diego, 300 tons, post office.

### FABRICATED PLATE

#### AWARDS

Orange, N. J., 620 tons, tanks for J. F. Trommer brewery, to Buffalo Tank Corp., Lackawanna, N. Y.

Philadelphia, 275 tons, tanks for Publicker Commercial Alcohol Co. distillery, to Chicago Bridge & Iron Works.

Cincinnati, 106 tons, tanks for Schenley District Corp., to Graver Tank & Mfg. Corp.

Houston, Tex., 500 tons, Hughes Tool Co. brewery tanks, to Petroleum Iron Works.

## Cast Iron Pipe

Providence, R. I., has awarded 12,000 ft. of 12-in. to United States Pipe & Foundry Co.

Swansea, Mass., has tentative plans for a water system requiring several hundred feet.

Warwick, R. I., 1500 tons, United States Pipe & Foundry Co., low bidder.

New York has awarded 1500 tons of 10 to 16-in. to Warren Foundry & Pipe Corp.

Bernice, La., plans 6 and 4-in. pipe lines for water supply system. Entire project will cost about \$35,000. S. E. Huey, Ouachita National Bank Building, Monroe, La., is consulting engineer.

Clarkton, Mo., plans about 12,000 ft. of 6 and 4-in. pipe lines for extensions and improvements in water supply system. W. A. Fuller Co., 2916 Shenandoah Ave., St. Louis, is consulting engineer.

Spearfish, S. D., plans pipe lines for main trunk water supply system and distributing lines. Cost about \$41,000. Financing is being arranged.

Reedsport, Ore., plans pipe lines for water supply, including reconstruction of present system and new lines. Cost about \$125,000.

Board of Wyandotte County Commissioners, Kansas City, Kan., plans pipe line from point near city to Brenner Heights and vicinity. Burns & McDonnell Engineering Co., 107 W. Linwood Boulevard, Kansas City, Mo., is consulting engineer.

Seattle has awarded 1110 tons of 24 and 30-in. for Denny Way line to United States Pipe & Foundry Co.

McNeil Island, Wash., has taken new bids on 250 tons of 6, 10 and 18-in.

Santa Monica, Cal., has awarded 160 tons of 6-in. to Ipameco Pipe Corp.

Oakland, Cal., will take bids Aug. 11 on 1800 to 2100 tons of 4 to 8-in., class B.

Burbank, Cal., has completed plans for 516 tons of 6 to 8-in.

# PLANT EXPANSION AND EQUIPMENT BUYING

## ◀ NEW ENGLAND ▶

**Bureau of Supplies and Accounts**, Navy Department, Washington, asks bids until Aug. 15 for 18 dynamo condenser circulating pumps and spare parts, three nozzle reamers and spare parts, and six air ejectors (Schedule 452) for Boston Navy Yard.

**Landers, Frary & Clark**, 47 Center Street, New Britain, Conn., manufacturer of cutlery, electric household appliances, etc., has asked bids on general contract for one-story addition. W. F. Brooks, Lewis and Gold Streets, Hartford, Conn., is architect.

**Edward W. Shea Machine Co., Inc.**, 179 Central Street, Fall River, Mass., has been organized by Edward W. and Vincent T. Shea, to manufacture machinery and parts.

**Russell Mfg. Co.**, Middletown, Conn., manufacturer of brake linings and kindred automotive products, plans early installation of equipment at branch plant at St. Johns, Que., where expansion will be carried out.

**Weibel Brewing Co.**, New Haven, Conn., has plans for extensions and improvements, including additional equipment. Company has arranged financing totaling \$424,287, a considerable part of fund to be used for purpose noted.

**Holmes Burner Co.**, Stratford, Conn., has been organized by Samuel J. White, 152 Temple Street, New Haven, Conn., and associates, to manufacture oil burners and parts.

## ◀ NORTH ATLANTIC ▶

**Lion Brewery**, Columbus Avenue and 108th Street, New York, has let general contract to J. F. MacElhinny, Inc., 90 Wall Street, for extensions and improvements in mechanical bottling works. Cost about \$45,000 with equipment. A. A. Tearle, 14 West Forty-fifth Street, is architect; E. H. Schneider is company engineer.

**Heer Metal Works, Inc.**, New York, has been organized by Hans Heer, 2047 Second Avenue, and Frederick E. Evans, 2111 Twenty-seventh Street, both Astoria, L. I., to manufacture metal products.

**Hoffman Beverage Co.**, 402 Grove Street, Newark, N. J., has leased buildings at 42-29 Eleventh Street, Long Island City, for new branch plant for storage and distribution.

**Horton-Pilsner Brewing Co.**, 460 West 128th Street, New York, has filed plans for extensions and improvements in five-story storage and distributing plant. Cost over \$35,000 with equipment. Frank A. Rooke, 12 East Forty-first Street, is architect.

**Bureau of Lighthouses**, Washington, has secured appropriations under new Public Works Bill for following projects and plans early call for bids: Power house and improvements in fog signal system, Thirty Miles Point Station, New York, \$28,400; new automatic lighting system, Sag Harbor, L. I., \$15,244; boat house with repair facilities and wharf, Cape Vincent, N. Y., \$35,000; new light station, Oswego, N. Y., \$50,000; new light and fog signal station, Lake Ontario, N. Y., \$99,800; addition to shop building, Buffalo, \$51,000 with equipment; electrification program, South Buffalo, \$14,500.

**Standard Brands, Inc.**, 595 Madison Avenue, New York, manufacturer of yeast, etc., has plans for two-story and basement addition to plant at Peekskill, N. Y., 80 x 170 ft., for production of gin and liquor products. Cost over \$80,000 with machinery.

**Progress Tool & Die Corp.**, New York, has been organized by Anton Jackson, 222 Eleventh Street, and Harry Sherman, 2009 Eighth-fifth Street, both Brooklyn, to manufacture tools, dies and kindred mechanical products.

**Frederick J. Patrizio & Co.**, 305 East Twenty-seventh Street, New York, general machinists, have leased building at 10-28 Forty-seventh Street, Long Island City, for new machine shop.

**India Wharf Brewery, Inc.**, Brooklyn, has been organized by M. Edward Katz, 1715 Caton Avenue, and Herman Gross, 1206 East Twenty-second Street, to erect new multi-story brewery, with brew-house, bottling works, refrigerating plant and power house at Hanover Avenue and Conover Street. Cost over

\$400,000 with equipment. Shampian & Shampian, 188 Montague Street, are architects.

**Sandvik Watch Spring Co.**, 88 Park Place, New York, manufacturer of watch springs and kindred precision equipment, has leased space in building at 145 Hudson Street, for new plant.

**United Lacquer Mfg. Co.**, 32 Exton Avenue, North Arlington, N. J., manufacturer of industrial lacquers, lacquer enamels, etc., has leased former plant of American Greenhouse Mfg. Co., Linden, N. J., and will improve and remove to new location.

**Consumer's Brewing Co.**, Elizabeth, N. J., recently organized by Walter Mahnken, 4028 Boulevard, Union City, N. J., and associates, will take over plant of Consumer's Ice & Cold Storage Co., 1079 East Grand Street, Elizabeth, and will improve for new plant. Cost over \$70,000 with machinery.

**Belleville Metal Stamping & Mfg. Co., Inc.**, Belleville, N. J., has been organized by David A. and Erwin Woerner, 245 Cortlandt Street, to manufacture metal products.

**United Brewing Co.**, Newark, recently organized, capital \$125,000, by Matthew F. Dornes, 17 Burnett Terrace, West Orange, N. J., and associates, has leased former Union Brewery, Springfield and Morris Avenues, Newark, and will remodel for new plant. Cost over \$65,000 with machinery. Edward A. Rehberger, head of Arthur Rehberger & Son, Inc., 316 Ferry Street, manufacturer of motor trucks and parts, is interested in new company.

**Bureau of Supplies and Accounts**, Navy Department, Washington, asks bids until Aug. 15 for 10,000 ft. extra flexible steel cable, 5/16-in. diameter, and 10,000 ft. similar cable, 3/4-in. diameter (Schedule 473); 5000 lb. 2-in. brass pipe, and 5500 lb. 3/4-in. brass pipe (Schedule 470) for Philadelphia Navy Yard.

**Peerless Brewing Co.**, Philadelphia, lately organized, has acquired property at Philip and American Streets, and will expand for new plant, including erection of new buildings for bottling and other departments. Cost over \$85,000 with equipment. William F. Koelle & Co., 1633 Race Street, are architects and engineers.

**Strelz Machine Co.**, 4973 Baynton Street, Philadelphia, manufacturer of machinery and parts, has leased floor in building at 5106 Germantown Avenue, for new plant.

**Construction Quartermaster**, Carlisle Barracks, Carlisle, Pa., will ask bids soon for installation of electrical, water and sewage systems, including equipment, pipe lines, etc., to cost \$249,780; also, extensions and improvements in steam power plant, cost \$23,326 with equipment.

## ◀ OHIO AND INDIANA ▶

**Peerless Co.**, Quincy and East Ninety-third Streets, Cleveland, recently organized as a subsidiary of Peerless Motor Car Corp., has arranged for change of name to Brewing Corp. of America, Inc. General contract has been let to S. W. Emerson Co., 1836 Euclid Avenue, for remodeling about 100,000 sq. ft. of former motor car plant of parent company, and erection of addition for brewery. Cost about \$530,000 with machinery. Julius C. Schultz, 1370 Main Street, Buffalo, is architect and engineer.

**Wright Electric Appliance Co.**, Cleveland, has been organized under direction of Bernard L. Goldman, Cuyahoga Building, by Albert Weingarten, Cleveland, and associates, to manufacture electrical appliances and equipment.

**Leisy Brewing Co.**, 3328 Vega Avenue, Cleveland, H. Leisy, head, recently organized, will soon purchase equipment for multi-story brewery, with mechanical-cooling, bottling, storage and distribution departments. Work will include a power house and machine shop. Cost close to \$500,000 with machinery. G. A. Mueller, 1346 Broadway, Detroit, is architect and engineer.

**Contracting Officer**, Material Division, Wright Field, Dayton, Ohio, asks bids until Aug. 16 for 50 fuel pump right-angle-drive assemblies, and 50 fuel pump drive coupling assemblies (Circular 20); 800 low-pressure oxygen connector assemblies (Circular 23);

until Aug. 22, 75 engine ring cowlings assemblies (Circular 25).

**Harshaw Chemical Co.**, 1945 East Ninety-seventh Street, Cleveland, has approved plans for new power plant at factory at Elyria, Ohio. Cost over \$35,000 with equipment.

**Department of Public Service**, City Hall, Columbus, Ohio, W. P. Halencamp, director, is considering extensions and improvements in municipal electric light and power plant, including new 10,000-kw. generator unit and auxiliary equipment, boilers, pumps, etc. Cost over \$600,000 with machinery.

**Muessel Brewing Co.**, South Bend, Ind., operating former brewery of Christoph Muessel on 15-acre tract, has plans by J. J. Schwarz, 1823 Touhy Avenue, Chicago, architect and engineer, for additions, including improvements and modernization of present plant. Cost over \$150,000 with equipment. D. Sherman Ellison is president.

**City Council**, Goshen, Ind., plans installation of electric and other pumping machinery, pipe lines, steel storage tank of 500,000-gal. capacity, and other equipment for extensions and improvements in waterworks. Pumping plant will be electrified. Cost about \$150,000. Bemis & Co., 105 West Adams Street, Chicago, are consulting engineers.

**City Council**, Tipton, Ind., is considering new municipal electric light and power plant. Cost about \$150,000 with equipment. W. A. Compton, mayor, is active in project.

**International Beverages, Inc.**, 1300 Madison Avenue, Indianapolis, is considering extensions in brewing plant, including new equipment. Cost about \$50,000 with machinery.

## ◀ BUFFALO DISTRICT ▶

**German-American Brewing Co.**, Bennett Street, Buffalo, has let general contract to John Johnson Contracting Co., 201 West Huron Street, for new plant, consisting of several multi-story units, with power house, machine shop and other mechanical departments. Cost over \$600,000 with machinery. Julius C. Schultz, 1370 Main Street, is architect and engineer. Company was organized recently with Arthur W. Kistner as president.

**Rochester Sash Balance Co., Inc.**, Rochester, N. Y., has been organized by John G. O'Brien, 463 Seneca Parkway, and associates, to manufacture sash weights, balances and kindred products.

**United States Hoffman Machinery Co.**, 219 Lansom Street, Syracuse, N. Y., manufacturer of laundry machinery and parts, has purchased plant and business of Amico Co., Atlanta, Ga., manufacturer of similar equipment, and will consolidate, expanding operations in last noted district.

## ◀ SOUTH CENTRAL ▶

**Cummins Distilleries, Inc.**, Athertonville, Ky., care of A. J. Cummins, Louisville, recently organized with capital of \$150,000, plans extensions and improvements in former distilling plant at first noted place. Cost over \$50,000 with equipment.

**Monarch Cooperae Co.**, Dyersburg, Tenn., plans erection of new one-story mill at Miston, Tenn., for manufacture of wire-bound barrels, kegs and kindred products.

**City Council**, Meridian, Miss., is planning new municipal electric light and power plant. Cost over \$100,000 with equipment. Burns & McDonnell Engineering Co., 107 West Linwood Boulevard, Kansas City, Mo., is consulting engineer.

**Charles H. Bradshaw**, H. E. Buckingham & Co., 75 Union Avenue, Memphis, Tenn., is at head of project to erect new plant for production of Fuller's earth near Ripley, Miss., with mining machinery, conveying, loading and other mechanical equipment. Cost over \$40,000 with equipment. Company will be formed to carry out enterprise. P. A. Raiche, engineer for Canal Construction Co., 75 East McCall Street, Memphis, is consulting engineer for new plant.

**Superintendent of Lighthouses**, New Orleans, has secured appropriations under new Public





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**EMPIRE**  
**STEEL CORPORATION**  
**MANSFIELD, OHIO**

### SALES OFFICES:

New York	Dayton	Cleveland	Indianapolis
Detroit	Chicago	St. Louis	San Francisco

Works bill and plans call for bids soon for Diesel engines for tender *Camelia*, cost, \$59,000; new equipment depot with storage and distribution facilities, \$117,250; new light-house tender, \$150,000; oil-burning equipment for tender *Magnolia*, \$65,000.

Cranfill-Frey Co., Inc., Lexington, Ky., has been organized to take over and expand Cranfill Roofing & Furnace Co., 174 Sherman Avenue, and will develop output for air-conditioning equipment, parts, etc.

### ◀ WESTERN PENNA. ▶

Miller Coal & Silica Sand Co., Lewistown, Pa., has arranged for purchase of properties of Eastern Silica & Chemical Corp., Gore, near Winchester, Va., from receiver, including over 50 acres of silica sand lands. Plans are under way for new buildings and installation of quarrying, grinding, pulverizing and other machinery. Cost over \$75,000. Certain equipment will be furnished by Lewistown Foundry & Machine Co., Lewistown, and other machinery purchases will soon be made. Jay G. Miller is head of purchasing company.

Borough Council, Coraopolis, Pa., is considering a municipal electric light and power distribution system. Cost over \$40,000 with equipment. Peter F. Loftus, Oliver Building, Pittsburgh, is consulting engineer.

H. J. Heinz Co., 1062 Progress Street, Northside, Pittsburgh, manufacturer of canned goods, has awarded general contract to Carter-Halle-Aldinger Co., Ltd., 22 Chatham Street, West, Windsor, Ont., for addition to branch canning plant at Leamington, Ont., operated in name of H. J. Heinz Co., Ltd. Cost over \$60,000 with equipment.

Hazelwood Beverage Co., Hazelwood district, Pittsburgh, operating Hazelwood Brewery, has arranged financing in amount of \$125,000, part of proceeds to be used for extensions and improvements.

Manion Steel Barrel Co., Oil City, Pa., has leased former cooperage plant of Valvoline Oil Co., East Butler, Pa., and will improve for branch plant.

### ◀ SOUTH ATLANTIC ▶

City Council, East Point, Ga., has called special election, Aug. 22, to approve bonds for \$140,000 for new municipal electric light and power plant. Diesel engine units will be installed. Frederick H. McDonald, Commercial Exchange Building, Atlanta, Ga., is consulting engineer.

Gossett Machine Works, Gastonia, N. C., manufacturer of steel rollers, flyers, etc., for textile mills, has awarded general contract to R. S. Barkley, Gastonia, for one-story plant unit, 42 x 80 ft.

Common Council, Pahokee, Fla., plans installation of electric pumping machinery and auxiliary equipment for extensions and improvements in waterworks. Financing in amount of \$100,000 being arranged.

Bureau of Lighthouses, Department of Commerce, Washington, has secured appropriations for work at Charleston, S. C., station and plans early call for bids, including electrification of machinery tender *Palmetto*, to cost \$11,000; converting different lights to automatic units, \$40,400; new equipment storage and distributing building, \$47,000.

Gulf Brewing Co., Pensacola, Fla., recently organized, capital \$600,000, by Frank E. Welles, Pensacola, and associates, plans new multi-unit plant, with refrigerating plant, power house and other structures. Cost over \$250,000 with equipment.

### ◀ SOUTHWEST ▶

Progress Brewing Co., 510 Braniff Building, Oklahoma City, Okla., recently organized, has let general contract to MacDonald Engineering Co., 1 North LaSalle Street, Chicago, for new plant, to include storage and distributing building, power house and machine shop. Cost about \$500,000 with equipment. George Lehle, 111 West Washington Street, Chicago, is architect.

Board of Education, 400 North Walnut Street, Oklahoma City, has engaged Layton, Hicks & Forsyth, Braniff Building, architects, to prepare plans for new high school with manual training department for colored students. Cost \$200,000 with equipment.

Grone Brewing Co., St. Louis, care of Edward A. Grone, McKnight Road, recently organized, plans extensions and improvements in plant at Twenty-second Street and Clark





Very hard wire  
takes an *edgewise bend*  
and retains its original properties

Have you ever seen tempered high carbon steel flatwire that could be wound edgewise with a pitch to it...and yet retain its original properties? It takes *some steel* to stand that...steel that has great strength, with a high degree of toughness and ductility. And it takes a deep knowledge of heat-treating and tempering, plus exceptional care throughout production to produce such steel.

This spiral section demonstrates Roebling's ability to handle the difficult jobs...to meet unusual and very exacting specifications. If you have a flat wire "worry", or require wire of highest quality, come to Roebling. We specialize on high quality cold-rolled high and low carbon flats, and we are particularly well-equipped to make high carbon "flats", tempered or untempered.

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Welding Wire • Flat Wire • Wire Cloth & Wire Netting  
New York Boston Chicago Philadelphia Atlanta Cleveland Seattle  
San Francisco Los Angeles Portland Export Dept., New York, N.Y.

ROEBLING



FLAT WIRE

Avenue, to include new equipment. Cost about \$100,000 with machinery.

**Muehlebach Brewery**, Eighteenth and Main Streets, Kansas City, Mo., is arranging financing totaling about \$900,000, considerable part of fund to be used for extensions, improvements and additions, including equipment. Ford, Bacon & Davis, 39 Broadway, New York, are engineers.

**Gregg-Tex Gasoline Corp.**, Longview, Tex., Clark Sample, Longview, representative, recently organized, is planning new gasoline refinery on tract about six miles from city. Cost over \$150,000 with machinery. Keith Jones, Shreveport, La., will head new company.

**Common Council**, Mission, Tex., is planning new municipal electric light and power plant. Cost about \$200,000 with equipment.

**Houston Ice & Brewing Co.**, Houston, Tex., B. V. Christie, head, recently organized, plans erection of new plant. Cost over \$100,000 with equipment. A. R. Dearborn, Houston, is interested in new company.

## ◀ WASHINGTON DISTRICT ▶

**Board of District Commissioners**, District Building, Washington, asks bids until Aug. 22 for one duplex vacuum pumping unit.

**Board of Education**, Covington, Va., plans manual training equipment in new high school. Cost about \$170,000. L. P. Smithy, Roanoke, Va., is architect.

**City Council**, Marion, Va., plans installation of pumping machinery and other equipment, pipe lines, etc., for extensions and improvements in municipal water and sewage systems. Cost over \$30,000 with machinery. J. B. McCrary Co., Marietta Building, Atlanta, Ga., is consulting engineer.

**General Purchasing Officer**, Panama Canal, Washington, asks bids until Aug. 16 for 25,000 ft. copper wire, electric marine fixtures, conduit fittings, toggle switches, etc. (Schedule 2891); until Aug. 17, 16,600 lb. steel rivets, 57,500 ft. single-conductor copper wire, steel machine bolts, black carriage bolts, malleable iron pipe fittings, malleable iron unions, galvanized flanges, galvanized flanged unions, rigid steel conduit, brass gate valves, brass globe valves, 1100 admiralty metal condenser tubes, 25,000 ft. wire, insulated cable, magnet wire and other equipment (Schedule 2890).

**Home Brewing Co.**, Richmond, Va., recently acquired by new interests headed by George A. Bernier, Sr., and associates, plans extensions and improvements, including additional equipment. Cost about \$100,000 with machinery. Carneal, Johnston & Wright, Electric Building, are architects.

**Bureau of Supplies and Accounts**, Navy Department, Washington, asks bids until Aug. 16 for 17,000 lb. brass pipe, 3/4- to 1 1/4-in. diameter, (Schedule 512), electric-heated and operated sanders, out-door type with foot switches (Schedule 524) for Brooklyn Navy Yard; chain fittings for sprocket gear (Schedule 507) for Boston, Brooklyn, Philadelphia and Puget Sound yards; 49,000 lb. galvanized flat sheet steel, and 5000 lb. galvanized flat steel (Schedule 463) for Norfolk, Va., yard.

## ◀ MIDDLE WEST ▶

**Griffith Laboratories**, 1415 West Thirty-seventh Street, Chicago, manufacturers of packers' equipment and supplies, have awarded general contract to Vagborg Construction Co., 251 West Seventy-ninth Street, for two-story factory addition. Cost over \$25,000 with equipment. A. Epstein, 2001 West Pershing Road, is architect and engineer.

**Westbrook Grain Co.**, Millington, Ill., plans new grain elevator at Serena, Ill., with screening, processing, elevating and other equipment. Cost about \$175,000 with machinery.

**Eulberg Brewery**, Galena, Ill., recently acquired by new interests, headed by Raymond Klaas, Louisburg, Wis., and associates, plans extensions and improvements, with early purchase of kettles, tanks, boilers, bottling and other equipment. Cost over \$85,000 with machinery.

**Tap Switch Corp.**, 809 Main Street, Peoria, Ill., has been organized by John P. Kitselman and Lester C. Brennan, Peoria, to manufacture switches and other mechanical equipment.

**Homestake Mining Co.**, Lead, S. D., has plans for expansion at gold-mining properties, including new shaft with installation of

mining, hoisting and other machinery; addition will be built to crushing and sorting mill, with new skip bin and other primary equipment. Work is scheduled for completion in 1934. Cost over \$800,000 with machinery. B. C. Yates is general manager.

**Common Council**, Morning Sun, Iowa, has called special election Aug. 12 to approve plans for new municipal electric light and power plant. Cost about \$70,000 with equipment. H. L. Cory Co., Baum Building, Omaha, Neb., is consulting engineer.

**Montgomery Brewing Co.**, Montgomery, Minn., has approved plans for extensions and improvements, including installation of new equipment. Cost about \$75,000 with machinery. H. E. Corkins is president. C. H. Machel is company engineer.

**Century Die Casting Co.**, Room 1203, 188 West Randolph Street, Chicago, has been organized by Lester L. Bauer, and associates, to manufacture die castings and kindred products.

**Cold Spring Brewing Co.**, Cold Spring, Minn., has awarded general contract to Edward Hirt & Sons, 901 Fourth Avenue South, St. Cloud, Minn., for one-story addition, 53 x 123 ft., for bottling works, including extensions and improvements in main brewery. Cost about \$125,000 with machinery. L. C. Pinault, Granite Exchange Building, St. Cloud, Minn., is architect.

## ◀ MICHIGAN DISTRICT ▶

**Lansing Brewing Co.**, 800 Bauch Building, Lansing, Mich., recently organized with capital of \$150,000 by J. C. McCullough and associates, has acquired property at North Lansing and plans new multi-story brewery. Cost about \$100,000 with equipment. Mildner & Eisen, Hammond Building, Detroit, are architects.

**Mueller Brass Co.**, Port Huron, Mich., manufacturer of plumbers' and other brass goods, is running on full production schedule, giving employment to 800 persons.

**Air Conditioning Corp.**, Detroit, has been organized by Paul W. Burns, 3084 East Grand Boulevard, and associates, to manufacture air conditioning equipment and systems.

**Schmidt Brewing Co.**, 1995 Wilkins Street, Detroit, is considering erection of new bottling plant. Cost close to \$100,000 with equipment.

**Township Committee**, Grosse Ile, Mich., plans installation of pumping machinery, pipe lines, etc., for extensions and improvements in water supply system. Cost about \$100,000. Financing is being arranged. H. G. Knight, 1000 West Grand Boulevard, Detroit, is consulting engineer.

## ◀ PACIFIC COAST ▶

**Southern California Brewing Co.**, Oviatt Building, Los Angeles, recently organized, has plans for new plant on 6-acre tract at South Gate, near Los Angeles, consisting of six-story brew-house, one-story bottling works, refrigerating plant, power house, machine shop and other units. Cost about \$375,000, of which more than \$160,000 will be expended for equipment. Bryant & Shaw, 1610 Cosmo Street, Los Angeles, are architects.

**El Dorado Oil Works**, Third Street and University Avenue, Berkeley, Cal., has plans for new coconut oil products plant at Oakland, Cal., consisting of main one-story unit, 100 x 650 ft., and one-story storage and distributing plant, 40 x 145 ft. Cost over \$400,000 with equipment. Ellison & Russell, Pacific Building, San Francisco, are architects.

**Board of City Trustees**, Turlock, Cal., is considering new municipal electric light and power plant. Cost over \$75,000 with equipment. H. C. Hall, city engineer, in charge of surveys.

**Fibre Board Products, Inc.**, 4545 Pacific Boulevard, Vernon, Los Angeles, has awarded general contract to Lindgren & Swinerton, 523 West Sixth Street, for one-story addition, 35 x 190 ft., for extensions in heater department. Cost close to \$30,000 with equipment.

**Pioneer Brewing Co.**, South Lincoln Street, Aberdeen, Wash., is planning two-story addition to double present capacity. Cost over \$75,000 with equipment. R. C. Hall is general manager.

**Bureau of Supplies and Accounts**, Navy Department, Washington, asks bids until Aug. 15 for 9500 lb. iron or steel wire (Schedule

459) for Puget Sound, Navy Yard; two single arm, single pole circuit breakers (Schedule 460); until Aug. 22, 20,000 lb. manganese nickel bar, 3/4-in. diameter (Schedule 469) both for Mare Island Navy Yard.

**Department of Interior**, Washington, has secured appropriations for Alaska Railroad, including \$190,000 for improving and reconditioning system, including equipment; and \$20,000 for new engine house with repair facilities near Juneau. Early call for bids is planned.

**Whatcom Skagit Brewing Co.**, Bellingham, Wash., W. W. Fairburn, 300 Gladstone Street, president, is considering erection of new plant. Cost about \$100,000 with machinery.

**Peterson Tallow Co.**, Sixty-fifth and Bay Streets, Oakland, Cal., plans new two-story factory, 120 x 140 ft., at Berkeley, Cal. Cost about \$50,000 with equipment. E. W. Remnitz, 1594 Sixty-third Street, Oakland, is architect.

## ◀ FOREIGN ▶

**Ultramar Sapu, Ltd.**, Buenos Aires, Argentine Republic, S. A., recently organized as joint interest of Texas Co., 135 East Forty-second Street, and Vacuum Oil Co., Inc., 26 Broadway, both of New York, has approved plans for new oil refinery in Argentine oil field district, with initial capacity for handling about 3000 bbl. crude oil a day. Cost over \$400,000 with storage and distributing units, pipe lines and other auxiliary structures.

**United Carbonic Acid Gas Co.**, Stockholm, Sweden, has approved plans for new acid works. Cost over \$150,000 with equipment.

**Turkish State Industrial Commission**, Istanbul, Turkey, has arranged with Commissariat of Heavy Industry, Soviet Russian Government, Moscow, for organization of joint interest to be known as Turkstroil, to erect textile mills at Kaisairi, Turkey. Project will include group of one-story mill units, with initial equipment of 33,000 spindles, 1000 automatic weaving machines, and auxiliary machinery; machine shops, power plant and other mechanical buildings. Cost over \$4,000,000 with machinery.

## June Automobile Statistics for Canada

**PRODUCTION** of automobiles in Canada fell off in June to 7323 cars from 9396 cars in the previous month, after advancing sharply in March over February and again showing increases in April and May. The output of passenger cars declined to 6005 from 8024, while the number of trucks and other commercial cars showed little change at 1318 units in June as against 1372 in May.

During June 5522 cars were made for sale in Canada, leaving a balance of 1801 intended for export. The apparent consumption of cars in Canada during the month, as determined by adding the 5522 made for sale in Canada to the 158 imported, amounted to 5680 cars. For the six months ending June 38,262 cars were produced in Canada, 929 were imported and 8714 were exported.

A new oil-immersed, combination switch has been announced by the General Electric Co. for use in hazardous gas locations. The switch is available in three sizes for motors up to 50 hp. at 440-volts. It is suitable for use in places where it might be exposed to corrosive and explosive gases. It may be located outdoors if necessary.





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## WILL LAST HALF AUTO SALES PASS FIRST HALF ?

**T**HE motor car has come to be a conspicuous criterion of prosperity. It is only natural, therefore, that the first great reflection of recovery has been in the expansion of automobile production.

That would indicate that the country is not headed for lower standards of living. In all of 1932, output of cars and trucks in the United States and Canada barely exceeded 1,400,000. In the first six months of 1933, the output went over one million units. June production approximated 250,000 vehicles, an annual rate of 3,000,000.

Normally, production in the first half of the year is greater than in the last half, but if the improvement continues this rule of past years may be reversed.

As purchasing power is restored, there remains the great task of replacing several millions of cars as well as providing for new demand.

The plants of the Interlake Iron Corporation are supplying pig iron and foundry coke not only to many important makers of cars but also to leading manufacturers of parts.

**I N T E R L A K E I R O N C O R P O R A T I O N**  
PIG IRON - COKE

PLANTS—CHICAGO . DULUTH . TOLEDO . ERIE

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CLEVELAND . CHICAGO . DETROIT . ERIE . TOLEDO . MINNEAPOLIS . DULUTH

# Steel Exports Declined In June, Imports Up

Exports of Iron and Steel from the United States  
(In Gross Tons)

	June		Six Months Ended June	
	1933	1932	1933	1932
Pig iron.....	94	235	1,189	1,524
Ferromanganese.....	4	.....	5	13
Scrap.....	64,831	21,837	355,354	115,595
<i>Pig iron, ferroalloys and scrap.....</i>	<i>64,929</i>	<i>22,072</i>	<i>356,548</i>	<i>117,132</i>
Ingots, blooms, billets, sheet bar.....	89	19	755	1,185
Skelp.....	2,570	1,830	4,662	12,806
Wire rods.....	1,312	693	6,226	9,228
<i>Semi-finished steel.....</i>	<i>3,971</i>	<i>2,542</i>	<i>11,643</i>	<i>23,219</i>
Steel bars.....	2,066	1,397	8,873	9,235
Alloy steel bars.....	68	77	610	911
Iron bars.....	43	97	204	335
Plates, iron and steel.....	472	424	2,345	5,963
Sheets, galvanized steel.....	3,278	1,452	14,968	13,972
Sheets, galvanized iron.....	128	133	404	778
Sheets, black steel.....	1,876	4,772	12,533	23,329
Sheets, black iron.....	206	246	844	1,784
Hoops, bands, strip steel.....	2,134	883	8,594	11,164
Tin plate; terne plate.....	5,651	2,877	24,073	19,572
Structural shapes, plain material.....	819	1,624	3,794	8,810
Structural material, fabricated.....	1,419	2,408	6,925	9,229
Tanks, steel.....	329	122	1,056	1,369
Steel rails.....	524	2,108	7,101	8,375
Rail fastenings, switches, frogs, etc.....	304	445	1,292	2,508
Boiler tubes.....	236	387	1,898	1,440
Casing and oil-line pipe.....	1,947	1,117	15,158	7,725
Pipe, black and galvanized, welded steel.....	2,672	1,838	11,806	13,853
Pipe, black and galvanized, welded iron.....	234	177	668	2,250
Plain wire.....	1,694	468	4,611	5,428
Barbed wire and woven wire fencing.....	2,822	1,384	11,046	10,638
Wire cloth and screening.....	76	51	296	328
Wire rope.....	157	69	834	838
Wire nails.....	1,141	483	3,802	4,053
Other nails and tacks.....	402	285	1,797	1,993
Horseshoes.....	22	2	54	31
Bolts, nuts, rivets and washers, except track..	263	193	1,547	1,376
<i>Rolled and finished steel.....</i>	<i>30,983</i>	<i>25,519</i>	<i>147,133</i>	<i>167,287</i>
Cast iron pipe and fittings.....	1,546	306	4,193	5,053
Malleable iron screwed fittings.....	159	143	930	931
Car wheels and axles.....	285	148	2,191	1,604
Iron castings.....	167	295	1,074	1,194
Steel castings.....	41	145	312	769
Forgings.....	149	325	1,511	2,280
<i>Castings and forgings.....</i>	<i>2,347</i>	<i>1,362</i>	<i>10,211</i>	<i>11,831</i>
All other.....	351	598	1,733	2,265
Total.....	102,581	52,093	527,268	321,734

Imports of Iron and Steel Products into the United States

(In Gross Tons)

	June		Six Months Ended June	
	1933	1932	1933	1932
Pig iron.....	11,230	14,604	62,827	75,203
Sponge iron.....	105	.....	220	51
Ferromanganese and Spiegeleisen*.....	6,911	2,889	19,447	13,836
Ferromanganese.....	.....	18	21	119
Ferrosilicon†.....	47	.....	51	32
Other ferroalloys.....	101	.....	102	639
Scrap.....	4,058	245	9,484	4,203
<i>Pig iron, ferroalloys and scrap.....</i>	<i>22,452</i>	<i>17,756</i>	<i>92,152</i>	<i>94,083</i>
Steel ingots, blooms, billets, etc.....	242	21	351	2,038
Wire rods.....	1,431	457	6,065	3,923
<i>Semi-finished steel.....</i>	<i>1,673</i>	<i>478</i>	<i>6,416</i>	<i>5,961</i>
Concrete reinforcing bars.....	313	3,428	1,585	19,388
Hollow steel bars.....	90	44	473	373
Merchant steel bars.....	1,844	3,173	8,876	19,106
Iron bars.....	46	5	195	261
Iron slabs.....	.....	11	1	11
Boiler and other plate.....	2	178	111	273
Sheets, skelp and saw plate.....	626	1,038	5,176	10,394
Tin plate.....	6	43	188	7,191
Structural shapes.....	3,329	2,044	12,800	17,339
Sheet piling.....	.....	.....	94	.....
Rails and rail fastenings.....	110	144	816	1,817
Welded pipe.....	253	194	1,675	2,194
Other pipe.....	176	127	680	1,544
Barbed wire.....	368	1,759	4,885	8,334
Round iron and steel wire.....	169	199	1,298	1,195
Flat wire and strip steel.....	102	56	471	423
Wire rope and strand.....	125	197	767	1,030
Other wire.....	105	86	878	447
Hoops and bands.....	1,955	2,382	8,390	11,644
Nails, tacks and staples.....	375	998	3,368	5,271
Bolts, nuts and rivets.....	16	16	139	81
Other finished steel.....	19	7	177	40
<i>Rolled and finished steel.....</i>	<i>10,029</i>	<i>16,129</i>	<i>53,003</i>	<i>108,356</i>
Cast iron pipe and fittings.....	71	.....	386	23
Castings and forgings.....	143	124	521	572
Total.....	34,368	34,487	152,478	208,995

\*Manganese content only.  
†Chromium content only.  
‡Silicon content only.

WASHINGTON, Aug. 4.—Due to the drop in the movement of scrap, exports of iron and steel in June declined 20,488 gross tons to 102,581 tons from 123,069 tons in May. Omitting scrap exports of 64,831 tons the outgoing shipments in June totaled 37,750 tons. This reflects a gain of 4009 tons over May when scrap exports of 89,328 for the latter month are eliminated. In the first six months of 1933 exports aggregated 527,268, a gain of 205,534 tons over exports of 321,734 in the corresponding period of last year. This sharp rise is accounted for by the scrap movement which in the first half of the current year totaled 355,354 tons compared with 115,595 in the first half of 1932.

Imports in June rose to 34,368 tons from 26,295 tons in May. In the first six months of 1933 they dropped 56,517 tons to 152,478 tons from 208,995 tons in the corresponding period of last year.

Of the June scrap exports, 56,429 tons went to Japan; 2876 tons to Poland; 2508 tons to the Netherlands and 1026 tons to Canada. The largest export movement in finished lines was 5651 tons of tin plate, of which 2112 tons went to China; 770 tons to Hong Kong and 448 tons to Kwantung. The next largest outgoing shipments were 3278 tons of galvanized steel sheets of which 2164 tons went to the Philippine Islands. Merchant steel bar exports totaled 2066 tons. Among markets to which shipments were made were Canada, 820 tons; Panama, 412 tons; Philippine Islands, 348 tons and China, 235 tons. Canada took the entire export

United States Imports of Pig Iron by Countries of Shipment

(In Gross Tons)

	June		Six Months Ended June	
	1933	1932	1933	1932
United Kingdom.....	.....	6,034	5,000	16,352
British India.....	5,047	2,515	28,768	21,906
Germany.....	.....	.....	234	135
Netherlands.....	5,969	5,815	23,336	35,392
Canada.....	112	.....	956	138
France.....	.....	.....	.....	.....
Belgium.....	.....	.....	.....	200
Norway.....	102	102	102	102
Sweden.....	.....	138	2,803	397
All others.....	.....	.....	1,628	581
Total.....	11,230	14,604	62,827	75,203

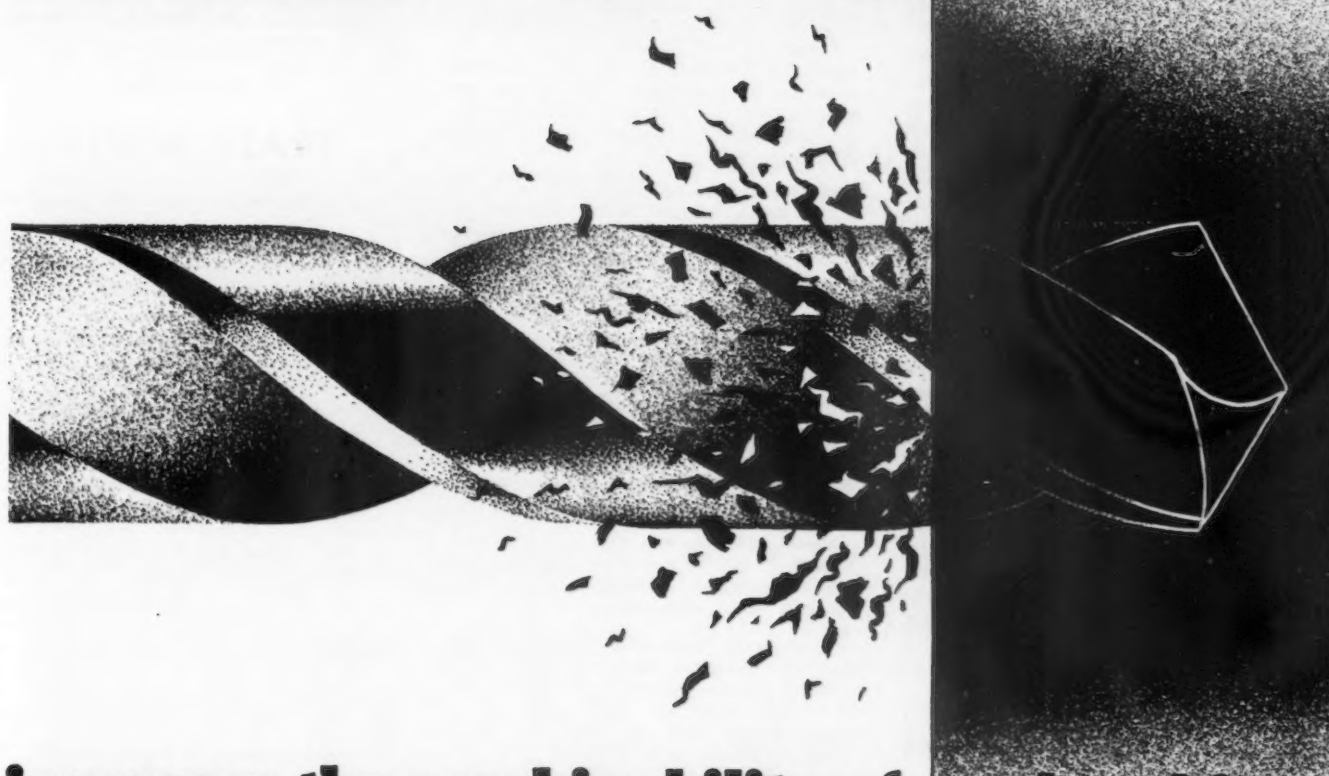
Sources of American Imports of Iron Ore

(In Gross Tons)

	June		Six Months Ended June	
	1933	1932	1933	1932
Canada.....	.....	42	.....	770
Cuba.....	22,000	.....	55,150	55,000
Chile.....	.....	43,304	.....	218,492
Spain.....	409	.....	409	49
Sweden.....	.....	.....	.....	7,037
French Africa.....	.....	.....	.....	10,000
Russia.....	9,200	16,460	49,850	98,060
Other countries.....	7,803	15,172	29,756	67,746
Total.....	39,412	74,968	135,165	457,154



# MOLY



## increases the machinability of steel and iron

CUTTING speeds and tool maintenance charges are two of the most serious problems confronting metallurgists, steel makers, foundrymen and fabricators. Molybdenum, the most potent alloy ever used in ferrous metals, definitely improves the machinability of iron and steel. Moly makes them machine more readily at any Brinell hardness. Even permits machining at hardnesses which would ordinarily prevent machining.

Moly steel gears have been machined at 550 Brinell. Records on gray cast iron show reductions of from one-third to one-half in cutting time after 0.50% Moly was added. Large users of alloy steels find that Moly saves them 15 to 20% in tool costs.

There are many case histories of Moly accomplishments and economies in actual service which we would like to present at your convenience. There are interesting test figures from many plants on improved physical properties as well as the greater machinability of Moly steel and iron.

Climax metallurgists and the Climax laboratories in Detroit offer you free engineering and experimental service whether or not you are a Climax customer. Won't you write for complete details or arrange a meeting with us at an early date? An important new book on Molybdenum will be mailed at once. Climax Molybdenum Company, 295 Madison Avenue, New York City.

**CLIMAX Molybdenum**

movement of 2570 tons of skelp, while Japan took 1229 tons of the 1312 tons of wire rods shipped abroad. Of the 2743 tons of barbed wire exported, Cuba took 589 tons; Brazil, 455 tons and Colombia, 394 tons. Galvanized steel welded pipe exports were 1561 tons, of which 398 tons went to the Philippine Islands; 314 tons to Brazil and 297 tons to Norway. Persia took 330 tons of the 1111 tons of black steel welded pipe exported and Mexico took 908 tons of the 1000 tons of cast iron pressure pipe shipped to foreign markets.

Pig iron imports in June totaling 11,230 tons constituted the largest inbound movement. Of this quantity, 5969 tons came from the Netherlands and 5047 tons came from British India. Of the 6911 tons of ferromanganese and spiegeleisen tons imported, 6233 tons came from Canada. Imports of hoops and bands totaled 1955 tons, Belgium supplying 986, France, 588 and Germany, 270 tons. Belgium furnished 1828 tons of the 3329 tons of shapes imported, while 1172 tons came from France and 329 tons from Germany. Belgium also was the source of 1205 tons of the 1844 tons of steel bars imported. All of the 5799 tons of manganese ore imported came from the Gold Coast of Africa.

Because of its large receipts of American scrap, Japan led as the destination of June exports, taking 58,027 tons. Canada led as the greatest source of imports, supplying 10,796 tons.

## Dean Kimball Sees Need for "Engineering Economists"

(Concluded from page 31)

matic at times because he has the power to prophesy and make good on his prophecies. In the field of general economics, however, exact facts are often difficult to obtain and when obtained their relations, as he several times emphasized, are far from obvious. "The evidence in general economics may be voluminous, the variables many and conflicting, and what is worse, they may be changing in character. In many cases the well-trained business man, or the lawyer, is just as capable, or more so, of drawing an accurate conclusion as any one else. Certainly the engineer has no advantage here unless the data are drawn largely from industrial sources with which he is more familiar than are others." It remains that Dean Kimball's conclusion is that if the engineer prepares himself through study of today's problems he can make a helpful contribution to the orderly regulation of our industrial life.

## TRADE PUBLICATIONS

**Portable Electricity.**—Bull Dog Electric Products Co., Detroit. Pamphlet illustrating the trolley duct system for electrical distribution, including application to manufacturing operations, testing electric products and repair work in garages and service stations.

**Modern Melting.**—Whiting Corp., Harvey, Ill. Booklet of 48 pages giving a brief history of the company and a description of its products, including cupolas, charging cars and mechanical chargers, rotary furnaces for high-test iron, pulverized coal equipment for foundries and Whiting side blower converters.

**Chromium Steel.**—American Sheet & Tin Plate Co., Philadelphia. Booklet describing properties and advantages of USS 12 chromium steel for perforated coal screens. Such screens, it is stated, have given as much as 927 breaker operating hours.

**Bakelite.**—Bakelite Corp., Bound Brook, N. J. Booklet entitled "Versatile Service of Bakelite Resinoid," outlining the origin, manufacture and industrial applications of many types of bakelite products created from the initial resinoid.

**Trichlorethylene.**—International Selling Corp., 70 Pine Street, New York. Booklet describing Pechiney brand trichlorethylene, a solvent of oils and greases for preparing metal parts for finishing coats.

**Controllers.**—Johnston Mfg. Co., Minneapolis. Bulletin No. 1020 describing line of automatic controllers for boilers.

**Motors.**—Ohio Electric Mfg. Co., Cleveland. Bulletin F describing can-type multiphase a.c. motors, consisting of stator and rotor for direct assembly into machine drives.

**Monel Metal.**—International Nickel Co., New York. Booklet illustrating application of monel metal to domestic purposes, including "Streamline" and "Straitline" monel metal cabinet tops and sinks, with suggestions on "how to bring the kitchen up to date."

**Wire Cloth.**—International Nickel Co., New York. Uses of wire cloth for filtration purposes and economies made possible are outlined in a new booklet. Applications are illustrated.

**Magnetic Inspection.**—Ferrous Magnetic Corp., 110 Washington Street, New York. Catalog No. 2 describing Fermango magnetic inspection equipment for strip steel and wire, including electrodes. A portable magnetic weld inspection unit is also shown.

**Electric Furnaces.**—Ajax Electrothermic Corp., Trenton, N. J. Bulletin No. 8 illustrating Ajax-Northrup electric furnaces for melting or heat treating, showing 3-kva. and 35-kva. equipment.

**Bench Millers.**—Hardinge Brothers, Inc., Elmira, N. Y. Circular illustrating and describing its Nos. 3 and 4 precision bench milling machines, horizontal and vertical, with attachments.

**Dolomite Refractories.**—Basic Dolomite, Inc., Hanna Building, Cleveland. Bulletin of 28 pages in very attractive form and with numerous illustrations. This describes and compares clinkered and calcined dolomite hearth refractories, points out that a smaller quantity of clinkered dolomite is required than calcined, and gives comparative cost data which shows that the use of the clinkered material is the more economical. Other advantages claimed for clinkered dolomite include increase of furnace efficiency, lower fuel consumption and greater furnace capacity per heat. Chemical and mineral analyses are given of Magnefer,

under which name the clinkered dolomite made by this company is known, and other clinkered dolomites. Interesting information is also given regarding the company's quarries and plants.

**Diesel Engines.**—Superior Engine Co., Springfield, Ohio. Bulletin No. 126 showing the company's complete self-contained portable Diesel power plant, including radiator cooling system in large sizes. Air cleaners are provided on the intake.

**Tool and Alloy Steels.**—Firth-Sterling Steel Co., McKeesport, Pa. Pamphlet listing company's products, including Circular C super high-speed steel, Blue Chip high-speed steel, Invaro oil-hardening steel and die steels; also stainless steels, and Firthite and Firthalloy sintered carbides.

## ▲▲ TRADE NOTES ▲▲

**Sundstrand Machine Tool Co.**, lathes, milling and centering machines and balancing tools, Rockford, Ill., has appointed R. Lewis Geibel, 1501 Undercliff Avenue, Bronx, New York, representative for its products in the New York territory.

**Clark Controller Co.**, electrical and mechanical apparatus, Cleveland, has appointed C. R. Lynch, 918 Chester Williams Building, Los Angeles, its representative in southern California.

**Erie Bolt & Nut Co.**, Erie, Pa., has established distributing centers in both Tulsa, Okla., and Houston, Tex., these being handled by the Moorlane Co. At each point they have a complete line of alloy studs and machine bolts for the oil field.

**A B C Coal & Coke Co.** has been organized to succeed the Hammond Iron Co., Birmingham, effective Aug. 1. Officers and personnel will remain the same as those of the Hammond company and headquarters will be continued in the Crawford Building, Birmingham.

**Material Handling & Engineering Co.**, 100 Rutledge Street, Brooklyn, has recently taken over the business of the More Handy Truck Corp. and will continue the manufacture of this line of trucks. Improved models will be offered.

**Pressed Steel Tank Co.**, Milwaukee, is scheduled for 24 hr. a day making Hackney metal barrels for beer.

## Beryllium Copper Alloys

(Concluded from page 16)

castings as "Everbrite" and monel metal. Because of a constant demand for a harder material of approximately these compositions, one large foundry expects to conduct experiments with beryllium-nickel with this end in view.

A large manufacturer of machinery uses beryllium as a deoxidizing agent in high-nickel castings and reports a decided improvement in the soundness and quality of his castings.

A subsequent article will deal with some of the other properties of beryllium-copper alloys, such as electrical conductivity, wear resistance and fatigue, together with special applications in industry.



# Check

## THESE FEATURES OF ELECTRIC WELD PIPE

*against any other pipe*

100% WELD

LONG LENGTHS

PERFECTLY ROUND

CLEAN INSIDE AND OUT

UNIFORM WALL THICKNESS

STRAIGHTNESS

FINE FOR EVERY TYPE  
OF JOINT

ANY DEGREE OF  
STRENGTH OR DUCTILITY

Do this and you can't go wrong, whether it's casing or tubing you need for a well, pipe for a long line, or a pipe for the building of a new refinery or the maintenance of an old one.

Certainly most pipe has a dependable weld, but Republic Electric Weld is 100 per cent. Some pipe can be had in long lengths—Electric Weld is made up to 50 feet. And as you check the features of this better pipe you will find that while other makes possess some of them, only Republic Electric Weld can honestly claim to have them all.

And it's all in the way it's made. Clean strip is formed cold to a perfect round. The seam is welded by electrical resistance where the edges meet. No metal is added at the weld and the grain structure is virtually the same at the weld as at any other point in the pipe wall. No furnaces to cause scaling. No heating of the entire mass of metal to make it out of round. No long cooling to jeopardize its straightness.

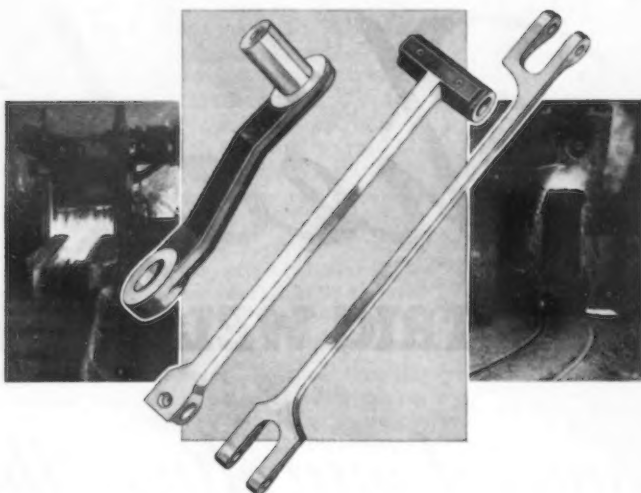
Before you buy pipe check into the advantages that Republic Electric Weld Pipe will bring to your particular work—find out how it will save you time and money. Write for a copy of "Electric Weld Pipe." A reading is convincing.

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GENERAL OFFICES  YOUNGSTOWN, OHIO



**REPUBLIC**  
**ELECTRIC WELD**

**LINE PIPE • CASING • TUBING**



the better  
the better  
the better  
the forging

Use



## SPECIAL HIGH GRADE FORGING BILLETS

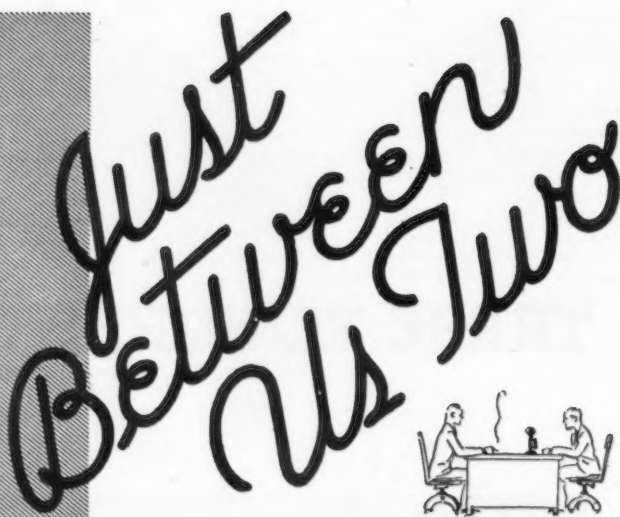
**B**ECAUSE of the way they're made—absolute control of the metal in the furnaces, elimination of confined gases, liberal discard at the shears, repeated rigid inspections, thorough chipping—ASCO Forging Billets are sound and dense; they produce forgings of maximum strength. Take no chances with your forging Steel—insist on ASCO Forging Billets.

Our metallurgical laboratories are at your service in developing special steels for special purposes.

**The ANDREWS STEEL CO.**  
NEWPORT KENTUCKY

Carbon  
Chrome  
Chrome Molybdenum  
Chrome Nickel  
Chrome Vanadium

Molybdenum  
Nickel  
Nickel Molybdenum  
Vanadium Billets and Slabs



### Speaking of Codes, as Who Isn't

**T**HE blanket manufacturers must feel somewhat chesty over the great amount of publicity their code is getting. . . . One of these days a brilliant newspaper editor is going to win undying fame by getting out an edition without a picture of General Johnson. . . . We have become fond of the General's rugged features but we could stand a little bit of Peggy Hopkins Joyce, just to keep our diet balanced. . . . On July 27 we remarked that NIRA sounded feminine. A few days later someone down South ups and gives that name to a baby daughter. Great is the influence of the trade press.

### Learning the Buck and Wing

**T**HAT was a neat press-agenting trick turned by the gear and bolt (lightning) people in getting their goods in the claws of the spread-eagle which is the NRA trademark. The bird's grip on the gear looks a little tense and insecure, like a short-fingered pianist trying to stretch an octave.

Maybe the Brain Trust wants to convey the impression that the eagle will be able to release that symbolic gear easily at the end of two years. Then again, the eagle's claws may stiffen from disuse, and the poor eagle, which appears from the illustration to be learning the first steps of the buck and wing, may not be able to let go.

### An Orchid for Us

**A** GENTLEMAN for whose judgment we have high regard writes:

"The Iron Age is the only business paper aside from the ——— which I read thoroughly. . . ."

We think it well to stop there. He did add, "... although the ——— is not read as consistently," which we hesitate to repeat, for fear of sounding catty.

### More to Come?

**T**HE receivers of a certain defunct marine hardware company recently sent us a check for the great sum of 15¢. Having no account against the firm, we wrote back, "What for?"

Another greater marine hardware company answered, "We bought out the so-and-so firm, l. s. and b. The 15¢ must be the first dividend coming to you under the NIRA. If so, you will probably find that it is also the last."

Mebbe so, mebbe so, but so far we have no kick. With a single exception, we added more new subscribers in the month just past than in any other July since 1926. Of course, we might have done as well if NIRA had never been born. It's like trying to figure out whether the fever would have broken just as soon if the medicine the doctor prescribed had been poured down the sink.

—A. H. D.